THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—34TH YEAR. SYDNEY, SATURDAY, NOVEMBER 29, 1947. No. 22.

Table of Contents.

CORPULENCE IN CHILDHOOD AND ADOLESCENCE: A CLINICAL STUDY.[1]

By H. BOYD GRAHAM, D.S.O., M.C., M.D., F.R.A.C.P.,
Physician to In-Patients, Children's Hospital, Melbourne.

Introduction.

DURING the past five or six years a notable feature of my pædiatric practice has been the demand for the amelioration of corpulence. I have studied the clinical problem closely and have evolved a system of treatment which can now be described and the results can be scrutinized in detailed fashion.

It should be clearly understood that the analysis has been made in retrospect for the present occasion. Many details could have been improved had the facts which have now become apparent been realized at an earlier date. It is also clear that the later results are much better than the earlier ones and, in future, appreciable shortening of the period of treatment may be expected.

The tendency to obesity is a tragedy affecting the personality pattern to a harmful extent, leading to unhappiness and frustration of vocational and social ambitions. The problem is one that all physicians have to face in practice and it is worthy of greater attention than it appears to receive.

Pubescent and adolescent girls who are corpulent deserve our sympathy particularly. They are very self-conscious about their physical appearance and suffer severely from the gibes and comments of their youthful companions. They are very willing to seek medical aid and will cooperate readily to secure the advantages of treatment.

[1] Read at a meeting of the Melbourne Pædiatric Society at the Children's Hospital, Melbourne, on August 13, 1947.

A psychological approach should be made by the physician in every case with the object of convincing the patient that much more than tablet-swallowing is required of him or her. Considerable personal discipline has to be learned and practised by the patient, who must be prepared to comply faithfully with the directions given from time to time by the physician about suitable dietary, suitable exercise and suitable therapy. The physician must arrange periodical supervision and carry out accurate measurements and, at all times, should be optimistic, encouraging the patient to stay the course and to expect good results in the long run. It is a mistake to see a patient too frequently; the treatment must necessarily be lengthy, and it is an encouragement to the patient and to the doctor if some improvement can be demonstrated progressively; demonstrable changes will not be clear-cut if the consultations are more frequent than once a month.

Constitutional Considerations.

It is well known that, architecturally speaking, body build may be classified according to divergence from a normal type in the directions of stockiness or slenderness. In famous studies the three main types have received many different names and many special varieties have been described. For our present purpose let us call them respectively the heavy or broad type, the intermediate or normal type and the slender or thin type.

At quite an early age the characteristics of the type of architecture are manifested and identification of the type should be made, as it is a useful guide to constitutional predisposition to various forms of ill-health. Many sufferers from corpulence have bodies built on broad lines accentuating the ungainliness of the adiposity.

The subject of the mechanical use of the body also deserves the close attention of doctors. Persons of heavy or broad build are prone to faulty posture which aggravates the disfigurement of the body and the damage to the personality pattern. Habits of good or of bad posture

are often formed in childhood and can be remedied frequently before the development of the frame has reached adult maturity.

It is a matter of general agreement that there are three recognizable growth cycles before the infant reaches maturity. Each growth cycle consists of two phases—a spurt in height accompanied and followed by a consolidation in girth and increase in weight. The first of these cycles commences in the first year of infancy. The second one is observable when the permanent teeth are appearing and the child has commenced regular attendance at school. The third cycle is usually contemporaneous with puberty and extends into adolescence. This third cycle starts earlier in girls than in boys, but ends sooner, and is not nearly so productive in height or in weight, accounting for the differences in average height and weight of the sexes at maturity.

The effects of these growth cycles on individuals vary appreciably and examples occur of mistiming which may be hereditary or the result of endocrinal disturbances. When excessive development takes place while the long bones are actively growing, unusual height is attained. In other cases, the long bones may have almost reached full growth before the third cycle is in full swing with consequent limitation of adult height. In extreme instances, we get characteristic syndromes of gigantism (simple, acromegalic, hypogonadal) or of dwarfism (hypergonadal, arrested skeletal development, cretinism), any of which may be associated with corpulence. They need only be mentioned here as they are too infrequent to affect the main problem of corpulence.

Except in extreme instances of dysfunction, it seems to be impossible to differentiate clinically between the influences on growth and development of the pituitary gland zone (including the hypothalamic area), of the pineal gland or even of the thyreoid or of the gonadal glands. The main influences on growth and development are produced by heredity and the combined endocrinal system, together with nutritional or infective effects, though, doubtless, climatic and other environmental circumstances are not negligible.

Reference is so frequently made in the histories to the family tendency to corpulence that it would be foolish to fail to recognize the very important influence of heredity in its production. In interviewing fat children and their near relations, one even has repeated ocular demonstrations of the familial tendency as a clinical experience. To the extent to which the state of the patient is ascribable to the genes in the chromosomes, the shape of the body is not amenable to our remedies. In many cases of clinical corpulence of the simple variety genetic influences are operative, and in some of them there is an inherent tendency for excessive deposition of adipose tissues in certain anatomical sites such as the breasts, the abdominal wall, the hips and thighs or the legs particularly below the knees. For descriptive purpose these special types may conveniently be dubbed respectively the "super-droopers", the "spare tires", the "big pants" and the "grand piano legs". Recently a "big pants" girl was brought to consult me by her "big pants" mother and her "big pants" aunt. The head and torso of each of the three of them were well within reasonable dimensions. At an early stage the genetic disqualification to the acquisition of the perfect figure should be recognized by the patient and by the doctor as something beyond the aim of treatment. The doctor should, however, assure a heavy-framed girl that she can become "a fine figure of a woman" if she learns to hold herself well, to reduce the corpulence as much as is possible and to move about with poise and dignity.

The inherited predisposition to corpulence can be modified and its effects mitigated only through the endocrine system or through the nervous system, but we have in our armamentarium as physicians ways and means of supplementing the natural processes by means of psycho-somatic therapy, physical methods, dietary control and the use of drugs and various glandular products. It may even be the case that, if by thyreoid gland therapy we favour the patient's endocrinal control of the aberration which is clogging the physiological processes, we may thus be able to ease the strain on the patient's nervous system brought into operation by the inadequate response of the endocrinal system. It is a nice point for discussion. As this study has developed, it has seemed to me that, by prescribing thyreoid tablets in sufficient dosage for certain hyperkinetic people of adipose tendency, it has been possible to diminish the abnormal nervous manifestations. This statement applies to people of heavy build who are nervously excitable and actively temperamental, but who, nevertheless, have to struggle against the disadvantages of progressive corpulence. Adjuvant use of sedatives, such as phenobarbitone, is advisable from time to time. The theory enunciated above depends on the assumption that the hyperkinesia is a natural compensatory effort of the nervous system, superimposed on a maximal endocrinal response, to prevent the adipose accumulations from harming the heart and circulatory system, the skeletal structures and other systems of the body.

Ætiological Considerations.

Recognizing as we do that certain persons of broad or heavy body-build exhibit corpulence for endogenous reasons associated with the genes that subserve the form of the body, the metabolism, the deposits of adipose tissues and the endocrinal pattern, attention is now directed to other ætiological considerations. After stating perfectly plainly that, in my experience, endogenous ætiology is paramount, I would turn your attention to exogenous and symptomatic causes of corpulence.

The chief exogenous causes are connected with food and physical activities. It is grossly unjust to the corpulent child to over-emphasize voracity as an ætiological factor. I read recently that "over-eating is their chief indoor sport". Most people of normal build and those included in the slender group are unlikely candidates for simple endogenous corpulence, but, in small numbers, they may become corpulent for exogenous or symptomatic reasons. Those of heavy build who are inherently liable to corpulence are even more prone than other people to exogenous corpulence and share the symptomatic liability. Adiposity may be one symptomatic feature of sub-thyreoidism, pituitary disorder, muscular dystrophy, mental subnormality or some neurological disease or orthopædic disability. It may be a pure symptom or secondary to inability to nourish the body or to lead an active life. Exogenous elements associated with corpulence such as faulty dietary and failure to take exercise should be readily recognized and should be corrected, so far as is possible, in any individual case.

Ascertainment of the relationship between the adiposity and pathological states of the organs of the body can be made by the taking of a complete history and, by proper physical examination, including any special investigations which are likely to throw light on the pathological state of the organs. For instance, if there are any features present to suggest that the stoutness may be portion of a pituitary syndrome, X-ray examinations of the skull should be undertaken to obtain an idea of the shape of the *sella turcica*. Irrespective of their bearing on the pituitary problem, estimations of blood pressure and the testing of urine for albuminuria and glycosuria should be carried out from time to time.

We may sum up by stating that endogenous factors are most prominent in the production of corpulence; that, on occasions, symptomatic obesity may be encountered; and that exogenous factors, if present, may be eliminated from the picture relatively easily. The problem resolves itself mainly into applying a system of treatment designed to modify the endocrinal pattern and to influence the nervous system in the direction of minimizing the effects of the inherent tendency to accumulate surplus fat. This constitutional peculiarity may or may not be linked up with other genetic aberrations.

Dietetic Control.

Growing children and adolescents should be fed generously and certainly must not be underfed. The dietary should contain well-balanced but sufficient amounts

of protein and of non-protein elements, together with essential minerals and vitamins and adequate watery constituents. If the physician states clearly that it is not necessary for the patient to go hungry and explains the above principle, lucidly and carefully, with simple detailed instructions for putting it into operation, it is unnecessary and preferable not to formulate a rigid dietary or to go into mathematics about caloric requirements. Broadly speaking, the kind of food sought by persons of slender build, rather than that usually preferred by the plump ones, should be taken by the plump ones as a matter of personal discipline and as an earnest of their desire to become thinner.

The protein substances least accompanied by fat should be chosen and methods of cooking without fat should be selected. The top three or four ounces of cream should be removed from each one-pint bottle of milk and the underlying milk may be taken freely or may be used in cooking, as the non-fatty contents are very suitable for the corpulent. Lean meat, white fleshed fish and plain protein cheeses are valuable additional sources of protein. The non-protein portion of the dietary should be obtained chiefly from fruits and vegetables which may be eaten freely. Cereals, including bread, and sugary foods should be taken sparingly and fats should not be excluded altogether. An egg a day may be permitted because of the high biological value of the contents. Salt should not be taken freely but strictly according to taste. Additional concentrated vitamin preparations may often be advantageously prescribed.

It is important to secure the intelligent cooperation of the patient in these matters and to safeguard against over-indulgence in the extras commonly taken by young people apart from the regular meals, such as chocolates, malted milk and ice cream.

Physical Activities.

Participation in pleasurable physical activities should be encouraged to secure physical fitness and the sense of well-being aroused by good peripheral circulation of the blood and healthy tonicity of the muscles. Many of the patients have lost the normal desire of children and adolescents to lead an active life. Violent exercises and prolonged immersion in steamy baths should be countermanded; weight lost by those exertions is rapidly regained, and to those in the corpulent state they may be positively harmful.

It is good psychotherapy to suggest the acquisition of an accomplishment to raise the patient's morale. By provision of the opportunity, an undesirably heavy child can become a swimmer or a skater of sufficient merit to arouse the envy or the admiration of companions. Swimming and skating are very active sports and violent indulgence in them is impossible until dexterity has been attained through constant and painstaking endeavour over the years. Once the necessary facility has been gained, these sports can always be resumed in adolescence or in adult life, and prowess at them has social advantages leading to companionship between the sexes.

It is usually good practice to encourage children to take part in field games because of the value of team-work in the building of character, but occasionally damage is done to the personality if the child has to submit to compulsion or is subjected to ridicule because of faulty performance or grotesqueness.

When formal gymnastic activities and postural exercises can be directed by a competent physical instructor, they may be of material assistance; without enlightened supervision, they usually prove ineffectual and may do harm. Most of these activities seem to be designed for people of intermediate build and athletic proclivities. Suitable exercises have been designed for the corpulent, but they must be carried out strictly as intended if they are to be remedial for the individual concerned.

Oral Thyreoid Therapy.

An important aim of treatment in the reduction of corpulence is the stimulation of the caloric output, which can be effected by increasing physical activity and by raising the metabolic rate. This is more rational than running the risk of lowering the caloric intake to a point endangering optimal growth.

Thyroxine stimulates metabolism and increases the activity of most of the cells of the body. It acts as a stimulant of the sympathetic nervous system, thus increasing the secretions of the adrenal, thyreoid and pituitary glands. It lowers carbohydrate tolerance and exerts an influence in favour of increased excretion of water and of salt. By its katabolic action it decreases the reserves of fat. It is obviously suitable for increasing caloric output. As treatment must be continued for many months, oral administration of tablets containing thyroideum has definite advantages over parenteral use of other preparations.

Throughout the present study the tablets manufactured by the Commonwealth Serum Laboratories have been specifically prescribed. Variable factors, such as difference in thyroideum content and activity, have thus been eliminated, so that dosage could be altered intelligently and results compared fairly. The unit used has been the tablet described by the manufacturers as "Thyroid, each tablet containing Grain 2½ of fresh healthy gland substance equivalent to Thyroideum, B.P., Grain ¾, which contains 0·1% of Iodine in combination as Thyroxine". When multiples of two units have been prescribed as the daily dose the largest tablet made has been ordered, abbreviated in the prescription to "Thyroid, grain 5 (fresh) = grain 1½ (dry), C.S.L.". Quite frequently many tablets of this largest size have been taken each day, for months on end, by certain of the patients with demonstrable benefit and without evidence of damage from excessive action or intolerance. To avoid the risk of sleep disturbance, it is recommended that the tablets should be taken in the early part of the day and not at night. The dosage from time to time for each patient must be decided by the physician and it should be increased steadily, in the absence of contraindications, until the patient's weight is falling regularly. At each consultation, the physician

TABLE I.

Tabulation of Average Statistics of Fifty-two Cases.

Factor.	Average Value.		
	Mild. (14 Cases.)	Moderate. (25 Cases.)	Severe. (13 Cases.)
Age:			
At commencement	14 years 0 month	12 years 3 months	11 years 9 months
At last consultation	16 years 0 month	14 years 7 months	13 years 6 months
Duration of treatment	2 years 0 month	2 years 4 months	1 year 9 months
Ultimate daily dosage:			
In units	6·75	6·4	10·1
In grains of thyreoideum, B.P.	5·0	4·8	7·6
Index of size:			
At commencement	119·5	136·5	164·3
At last consultation	111·0	122·0	142 2
Reduction (in points)	11 (12)	16 (23)	22 (13)

NOTE.—Many of the patients are still undergoing treatment and some have allowed treatment to lapse.

TABLE II.

Mild Group. Index of Size under 125 at Beginning of Treatment.

Serial No.	Case No.	Sex.	Age.[1]	Duration.[1]	Ætiology (and Unusual Distribution).	Thyreoid Therapy in Daily Number of Units of Thyroideum (grain ¼) B.P.	At Beginning of Treatment.			At Last Consultation.			Alteration in Index of Size.	Remarks.
							Weight Index.	Height Index.	Index of Size.	Weight Index.	Height Index.	Index of Size.		
1	16	F.	6 4	0 8½	Endogenous.	2 for 3½ m.,[2] 4 for 5 m.	125·5	103·3	121	114·0	103·1	110	−11	Very much improved in figure. Brighter and doing extra well at school. In progress.
2	15	M.	7 0	2 11	Endogenous.	2 for 20 m., 4 for 1 m., 6 for 14 m.	127·0	103·6	122	122·7	106·3	115	−7	He is very well and has almost reached the desired size. In progress.
3	14	M.	10 6	0 4	Endogenous.	4 for 2 m., 5 for 2 m.	118·1	98·6	119	111·3	98·6	112	−7	Constipation relieved. Surplus adiposity removed.
4	38	M.	10 10	4 0	Endogenous.	1 for 2 m., 2 for 2 yr., lapsed for 15 m., 4 for 7 m.	120·5	101·3	119	125·0	100·0	125	+6	Great improvement in outlook and in general activity, but under-dosed and irregularly under supervision.
5	28	F.	11 7	1 5	Endogenous, symptomatic (subthyreoid).	2 for 9 m., 1 for 3 m., none for 5 m.	127·9	104·0	123	102·0	100·8	100	−23	Subthyreoidism disappeared. Figure became slender and posture good.
6	35	F.	12 10	1 7	Endogenous.	2 for 3 m., 3 for 3 m., 4 for 6 m., 5 for 4½ m., 6 for 2½ m.	114·0	92·9	122	108·2	92·5	117	−5	Disappointing. Poor dietary control. General family carelessness and lack of control.
7	29	F.	13 7	3 11	Endogenous ("big pants").	1 for 1 yr., intermittently, 3 for 1½ m., 4 for 1½ m., 5 for 4 m., 6 for 7 m., 8 for 21 m.	123·8	102·4	121	109·6	98·1	112	−9	Has almost reached the desired figure. Great general improvement and personality uplift. In progress.
8	43	F.	14 4	3 7	Symptomatic (post-encephalitic).	2 for 10 m., 4 for 33 m.	111·7	94·9	118	101·2	100·0	101	−17	Much happier and stronger and more alive. Has become employable. Figure now satisfactory. Under supervision still.
9	56	F.	16 0½	1 3½	Endogenous.	4 for 4½ m., 6 for 11 m.	111·7	100·0	112	117·3	100·0	117	+5	Strong, athletic and sanguine. Treatment irregular. Poor control of dietary. Probably not conscientious about taking tablets.
10	52	F.	17 3	0 11½	Symptomatic (subthyreoid).	2 for 1 m., 3 for 1 m., 4 for 1½ m., 5 for 1½ m., 6 for 3 m., 7 for 3½ m.	118·8	97·3	122	100·0	97·3	103	−19	Great improvement in energy; looks and feels very well. Can now control her own case. Typist.
11	50	F.	18 4	1 1	Endogenous.	2 for 13 m.	116·9	98·9	118	112·0	98·9	113	−5	Afraid of emulating father in size. Normal broad build. Took up nursing.
12	49	F.	19 4	2 0	Endogenous ("big pants").	2 for 2 m., 3 for 1½ m., 4 for 1½ m., 6 for 8 m., 8 for 2 m., 10 for 7 m., 8 for 2 m.	109·4	95·4	114	107·1	95·4	112	−2	Thighs still too big, great general improvement in energy and initiative. Distinct tendency to adiposity and difficult to control. Figure very good. Receptionist.
13	54	F.	19 9	2 10½	Endogenous.	4 for 3 m., 6 for 6 m., 7 for 3 m., 6 for 5 m., 4 for 7 m., 3 for 10½ m.	119·2	100·0	119	106·8	100·0	107	−12	Looks well and feels splendid. Accountant.
14	41	F.	20 0	0 7	Endogenous.	6 for 2 m., 8 for 5 m.	119·5	96·6	124	107·7	96·6	111	−13	Gained two stone in one and a half years in adolescence. Lost one stone in seven months under treatment. In progress. Typist.

[1] Years and months. [2] Months.

TABLE III.

Moderate Group. Index of Size between 125 and 150 at Beginning of Treatment.

Serial No.	Case No.	Sex.	Age.[1]	Duration.[1]	Ætiology (and Unusual Distribution).	Thyreoid Therapy in Daily Number of Units of Thyroideum (grain ¼) B.P.	At Beginning of Treatment.			At Last Consultation.			Alteration in Index of Size.	Remarks.
							Weight Index.	Height Index.	Index of Size.	Weight Index.	Height Index.	Index of Size.		
1	17	F.	3 5	1 7½	Endogenous.	1 for 1½ m.,[2] 2 for 16 m., 1 for 2 m.	161·0	113·3	142	143·5	116·6	123	−19	Under treatment gained 3¾ inches in height and lost 1½ pounds in weight. Broad build—under control. In progress.
2	13	F.	6 11	0 3	Endogenous.	2 for 3 m.	135·6	105·8	128	126·5	104·8	110	−18	Big, well grown child. Will need further treatment later. Satisfactory at this stage.
3	6	F.	7 9	3 8	Endogenous.	1 for 14 m., 2 for 3 m., 4 for 14 m., 6 for 2 m., 8 for 8 m., 6 for 3 m.	135·0	106·4	127	135·0	110·3	122	−5	Exudative diathesis and enuresis. Signs of early pubescence. General improvement. In progress.
4	19	F.	7 11	3 4½	Endogenous.	2 for 1½ m., 3 for 5 m., 4 for 11 m., 6 for 10 m., 4 for 4½ m., 6 for 5 m., 7 for 1½ m., 6 for 2 m.	167·3	113·3	147	147·7	111·2	132	−15	Great improvement. Has lost stoutness and protuberant abdomen. Tall, good figure, but looks much older than she is.

[1] Years and months. [2] Months.

TABLE III.—*Continued.*

Moderate Group. Index of Size between 125 and 150 at Beginning of Treatment. Continued.

[1] Years and months. [2] Months.

TABLE III.—*Continued.*

Moderate Group. Index of Size between 125 and 150 at Beginning of Treatment.—Continued.

Serial No.	Case No.	Sex.	Age.[1]	Duration.[1]	Ætiology (and Unusual Distribution).	Thyreoid Therapy in Daily Number of Units of Thyroideum (grain ¼) B.P.	At Beginning of Treatment.			At Last Consultation.			Alteration in Index of Size.	Remarks.
							Weight Index.	Height Index.	Index of Size.	Weight Index.	Height Index.	Index of Size.		
5	18	F.	8 1	2 10	Endogenous, symptomatic (mental subnormality).	1 for 1 m., 1½ for 2 m., 2 for 6 m., 3 for 8 m., 4 for 2 m., 5 for 2 m., 6 for 10 m., 5 for 3 m.	143·2	104·7	137	109·5	106·9	102	−35	Much happier, less nervy. More confident, more active, more intelligent, good figure. In progress.
6	2	F.	9 0	1 11	Endogenous, symptomatic (diplegia).	2 for 3 m., 3 for 5 m., 2 for 15 m.; advised 6 to country general practitioner.	132·0	101·9	129	134·0	105·0	127	−2	Reported that epilepsy disappeared with increased thyreoid therapy. No abnormality found on X ray examination.
7	5	F.	9 5	1 3½	Endogenous ("big pants").	4 for 15½ m.	147·3	105·7	139	159·6	111·2	144	+5	Break in continuity of supervision for over a year. A fine strong girl with big thighs. In progress.
8	11	F.	9 11	0 9	Endogenous.	4 for 1½ m., 5 for 2½ m., 6 for 5 m.; 8 advised to general practitioner.	145·9	102·3	142	122·4	102·7	119	−23	Much more active and greatly improved.
9	27	F.	10 2	5 8½	Endogenous.	1 for ½ m., 2 for 9 m., lapsed for 1 yr., 2 for 10 m., lapsed for 26 m., 5 for 1½ m., 8 for 1 m., 10 for 2½ m., 12 for 4 m., 14 for 2 m.	151·8	109·8	138	142·5	110·5	129	−9	Remarkably sturdy. Good poise. Took 14 units daily to stop rapid weight increase at puberty. Treatment intermittent.
10	33	F.	10 11	0 5½	Endogenous, symptomatic (subthyreoid).	6 for 5½ m.	151·5	104·0	145	127·2	104·4	122	−23	Great improvement. No longer subthyreoid. In progress.
11	24	F.	11 10	0 9½	Endogenous.	2 for 1 m., 4 for ½ m., 5 for 5 m., 6 for 1½ m., 8 for 1½ m.	123·2	96·5	128	100·0	98·3	102	−26	Transient left hemiparesis. Great improvement. Now almost right. In progress.
12	23	F.	11 11	2 7	Endogenous.	4 for 1 m., 6 for 5 m., 4 for 10 m., lapsed for 12 m., 6 for 3 m.	136·3	100·8	135	111·9	99·2	112	−23	Almost right. Did well during lapse from treatment. In progress.
13	30	F.	12 8	0 3	Endogenous.	4 for 3 m., advanced to 6 units.	150·5	107·1	140	146·6	106·7	137	−3	Treatment not yet far enough advanced. In progress.
14	22	F.	13 4	4 10	Endogenous ("superdrooper").	2 for 10., none for 6 m., 4 for 6 m., 6 for 4 m., 8 for 32 m.	152·0	103·7	146	117·2	100·0	117	−29	Poor posture. Inferior feelings. Subject to acne. Considerable improvement in figure. Lost 8½ pounds. Probationer nurse.
15	32	M.	13 8	0 10	Endogenous.	4 for 3 m., 5 for 4 m., 6 for 3 m.	131·5	101·6	129	106·2	100·0	106	−23	Had previous failure with smaller dosage. Reduction sufficient and will be maintained.
16	58	M.	13 9½	0 9½	Endogenous.	4 for 9½ m.	160·0	110·0	145	140·5	109·9	127	−18	Reduction sufficient; one and a half years later 12 stone and 6 feet and very well.
17	34	M.	14 1	0 6	Endogenous.	4 for 6 m.	135·0	104·0	129	130·6	103·9	125	−4	Cooperation poor and treatment lapsed. Feeling of inferiority, awkward and clumsy.
18	37	F.	14 8	6 11½	Endogenous ("superdrooper").	2 for 6 m., lapsed for 9 m., 1 for 8½ m., 2 for 6 m., lapse for 12 m., 6 for 3 m., 8 for 6 m., 10 for 17 m., 12 for 4 m.	120·3	95·3	126	151·8	98·0	155	+29	Thyreoid imbalance. Gained a lot during lapses. Feels marvellously well. Resigned to her shape. Saleswoman, forewoman.
19	53	F.	14 8	2 4	Endogenous ("big pants").	2 for 5 m., 3 for 2½ m., 4 for 1½ m., 5 for 7 m., 6 for 6 m., 8 for 6 m.	136·5	91·2	148	123·8	92·3	134	−14	Became much brighter, more active, but poor home discipline and lack of proper cooperation.
20	57	F.	15 2	2 9	Endogenous ("superdrooper").	4 for 10 m., 6 for 9½ m., 8 for 3½ m., none for 4½ m., 2 for 5½ m.	159·7	107·8	148	118·6	107·0	111	−37	Reduced sufficiently in two years. Small maintenance amount afterwards. Epileptic and very tall.
21	44	F.	15 6½	0 11½	Endogenous.	2 for 5½ m., 4 for 6 m., 6 advised to general practitioner in country.	141·6	101·6	139	136·8	101·9	134	−5	Treatment under my supervision not completed. Became alert and very well.
22	48	F.	16 2½	4 11½	Endogenous ("grand piano legs").	2 for 2 m., 4 for 8½ m., 6 for 3½ m., 4 for 3 m., 6 for 10 m., 4 for 6 m., 6 for 20 m., 8 for 6½ m.	132·7	97·3	136	115·3	96·6	119	−17	Thin enough in chest, neck and face, but legs still very large. Strong swimmer. Active and well. Typist.
23	42	F.	16 3	3 4	Endogenous ("superdrooper").	4 irregularly for 3 yr. 4 m., 6 advised.	132·3	103·0	129	129·1	103·0	125	−4	Very big breasted and far too heavy. Tries to control herself; under occasional supervision. University student.
24	55	F.	18 1½	3 8	Endogenous ("big pants").	3 for 6½ m., 4 for 3 m., 6 for 3½ m., 8 for 10½ m., none for 1 m., 9 for 3 m., 8 for 13½ m., 10 for 8½ m., 8 for 1½ m., 6 ozs. for 2 m., 8 for 3 m.	124·2	96·2	129	113·0	96·2	117	−12	Thin enough in face and chest. Still big round hips and thighs. Clerk. In progress.
25	61	F.	20 8	0 5	Endogenous ("superdrooper").	4 for 1½ m., 6 for 3½ m.	127·1	96·2	132	122·5	96·2	127	−5	Unsatisfactory patient. Too self-conscious to take exercise. Too poorly disciplined for dietetic or therapeutic control. Lapsed.

[1] Years and months. [2] Months.

TABLE IV.

Severe Group. Index of Size over 150 at Beginning of Treatment.

Serial No.	Case No.	Sex.	Age.[1]		Duration.[1]		Aetiology (and Unusual Distribution).	Thyroid Therapy in Daily Number of Units of Thyroideum (grain ¼) B.P.	At Beginning of Treatment.			At Last Consultation.			Alteration in Index of Size.	Remarks.
									Weight Index.	Height Index.	Index of Size.	Weight Index.	Height Index.	Index of Size.		
1	12	F.	6	3	0	5½	Endogenous.	6 for 2 m., 8 for 2 m., 10 for 1½ m.	189·8	111·7	169	167·3	111·2	150	−19	Ungainly and rather timid, but has improved a lot already. In progress.
2	10	F.	6	5	3	0	Endogenous ("big pants").	1 for 4 m., 2 for 20 m., 4 for 12 m., 6 advised.	171·0	112·6	152	161·5	113·7	142	−10	Very well grown intelligent child. Dosage rather light. In progress.
3	8	F.	8	2	0	8½	Endogenous.	4 for 6½ m., 6 advised.	188·0	116·0	162	163·6	118·0	139	−23	Epileptic. Has become active, lively and tireless already. In progress.
4	9	F.	9	0	2	5	Endogenous ("big pants").	2 for 3 m., 3 for 2 m., 4 for 1 m., 5 for 2 m., 6 for 12 m., 8 for 2 m., 10 for 3 m., 12 for 1 m., 2 for 9 m. advised.	152·1	101·0	151	153·8	102·6	149	−2	Intelligent. Broad build; swims strongly. Dietary control unsatisfactory. In progress.
5	36	M.	9	0	7	2	Endogenous, symptomatic (pituitary).	2 for 6 m., lapsed for 18 m., 4 for 6½ m., 4 for 3½ m., 6 for 7½ m., 4 for 4 m., 3 for 3½ m., 4 for 7½ m., 3 m. 8 for 11½ m., 8 for ½ m., 12 for 8 m., 1 ct. for 1 m.	168·7	104·8	161	133·0	104·9	127	−34	Has changed from fat boy with infantilism to robust, good looking, athletic butcher. He is very well. In progress.
6	4	F.	10	4	0	8	Endogenous.	2 for 1 m., 3 for 3 m., 2 for 4 m., lapsed.	167·1	107·4	156	143·6	109·7	130	−26	Made good progress but did not persist. Three years later, without treatment, index of size was 137.
7	25	F.	10	10	2	9	Endogenous.	4 irregularly for 5½ m., 6 for 15 m., lapsed for 10 m., 10 for 2½ m., 12 advised to general practitioner.	177·2	106·9	166	150·0	106·0	141	−25	Intermittent treatment; not satisfactory Irregularly under my supervision.
8	39	F.	12	0	0	6½	Endogenous.	6 for 3 m., 8 for 2½ m., lapsed.	194·0	103·5	187	171·1	102·5	167	−20	Epileptic. Reputedly big and bold two years later. Poor home and personal discipline.
9	21	F.	13	1	0	11½	Endogenous ("big pants").	4 for 1½ m., 6 for 1½ m., 8 for 4 m., 10 for 1½ m., 11 for 3 m., 12 advised.	155·0	100·0	155	133·0	102·4	129	−26	Notable improvement in the time. In progress; intelligent and emotional.
10	47	F.	15	1½	0	6½	Endogenous.	4 for 1½ m., 6 for 5 m., 8 advised.	181·9	100·0	182	159·1	99·4	158	−24	Making good progress. Lapsed from supervision but controls her own case fairly successfully now.
11	40	F.	15	2	1	3½	Endogenous.	2 for 1 m., 3 for 1 m., 4 for 3 m., 6 for 10½ m.	151·6	95·4	158	124·6	95·4	131	−27	Learned how to take care of herself. Normal build and very well at age of twenty-two years.
12	45	F.	16	10½	2	3½	Endogenous ("big pants").	8 for 4 m., 10 for 1 m., 12 for 7½ m., 14 for 1½ m., 16 for 13 m., 20 for ½ m., and continuing to have 20.	173·9	103·4	168	136·3	103·3	131·5	−35½	An intelligent school teacher cooperating well. Strong, athletic and healthy. In progress.
13	66	F.	20	9½	1	0	Endogenous, exogenous ("superdrooper").	2 for ½ m., 4 for ½ m., 6 for ½ m., 8 for ½ m., 10 for 1 m., 12 for 1 m., 14 for 5 m., 12 for 1½ m., 16 for 1½ m., advised 20.	169·6	100·0	169	153·4	100·0	153	−16	Textile worker in fat (wool oil). Poor dietetic control. Very big self-conscious girl. Anxious to reduce. In progress.

[1] Years and months. [2] Months.

should assure himself that dietary control and physical activities are being maintained by the patient and that the tablets prescribed are being taken regularly. Pulse rate and blood pressure records should be made frequently and fresh specimens of urine should be tested for albumin and sugar. As a demonstration of progress and a guide to dosage, physical measurements should be made and recorded at each visit. In the present study they have included weight (stripped or very lightly clad), height (without shoes), and circumferential measurements of the chest or the bust, the waist, the greatest girth at the hips and sometimes the calf of the legs. It is a matter of further interest to keep notes concerning menstruation, energy, appetite and general well-being.

Certain features of subthyreoidism are frequently seen in corpulent patients and their removal by thyreoid medication represents material improvement. Subthyreoidism (short of actual myxœdema) causes dryness of the skin, lack of lustre in the hair, relative hairlessness and smoothness of the skin, loss of hair from the outer one-third of the eyebrows, roundness of the face, decreased sharpness of the nose and chin, loss of energy, mental torpor and forgetfulness, vasomotor disturbances, tendency to upper respiratory infections and sluggishness of the bowel actions and, of course, corpulence. The collection strongly suggests the features accepted by the complacent as inevitable in middle age. It is reminiscent of the picture of "middle-age spread".

Leading evidences of limit of tolerance to thyroxine are tachycardia, nocturnal restlessness, increased excitability, looseness of the stools and headache. Persistence in face of these warnings can cause undesirable cardio-vascular symptoms and a syndrome resembling that of thyreotoxicosis with tremor, exophthalmos, tachycardia, palpitation and extreme nervousness. In this clinical study, none of the children or adolescents manifested evidences of approaching the limit of tolerance, though dosage was often far in excess of that currently accepted as maximal. Surely, if we use active preparations, it is sound sense to prescribe enough to obtain the desired result.

The accumulation of fat in the body is a complicated process dependent on intake of food, utilization of food, expenditure of energy and probably other factors. Oral thyreoid therapy favours depletion of reserves, increased expenditure of energy and increased output of fluids. It should not be overlooked, however, that confidence in the treatment shown by the doctor, the parent and the

child may produce a psychic effect acting through the nervous system on the physical state of the patient. One should adopt a sanguine attitude at all times, working the dosage up on the evidence obtained from visit to visit, using all one's skill to hold unwaveringly the confidence of the parent and the child.

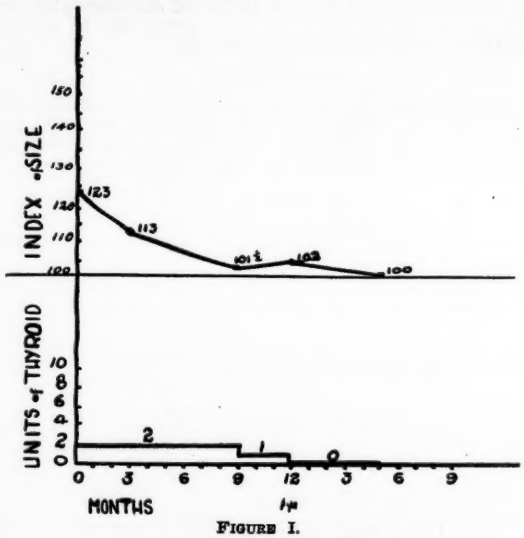

FIGURE I.
Case No. 28, Mild Series No. 5.

If we persist with weight reduction by the use of thyreoid medication beyond the point at which all but the genetically abnormal features have become satisfactory, we run the risk of giving the patients haggard faces, loose skins, and scraggy necks and shoulders; that state of affairs may be almost as undesirable as the original rotundity. Should it occur, no doubt the over-correction would revert rapidly when the maintenance dose of thyroideum was lowered.

We cannot always be successful in giving the patients impeccably good figures devoid of cosmetic defects. We can, however, make the best of what Nature has decreed. We can do a lot to control corpulence in the growing child or adolescent, keeping the figure within reasonable bounds and raising the morale of the developing personality.

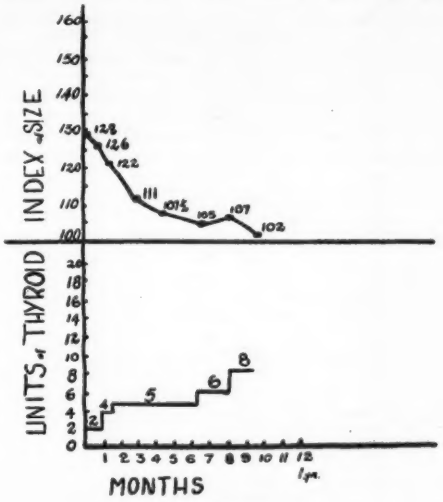

FIGURE III.
Case No. 24, Moderate Series No. 11.

The Case Book.

My case book contains an analysis of the cases of seventy patients for whom I have prescribed thyreoid tablets for corpulence since January 1, 1939. I have excluded from it babies of all types and mentally defective children and undersized children for whom thyreoid therapy was used merely to stimulate growth and development. Some of the seventy patients have been under supervision for years, others only casually or intermittently or for less than three

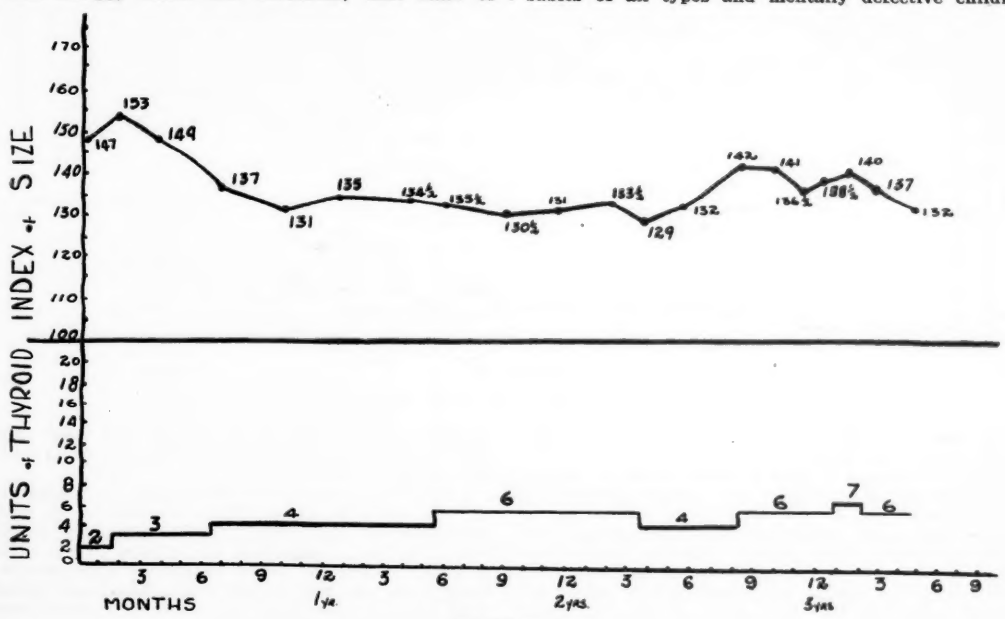

FIGURE II.
Case No. 19, Moderate Series No. 4.

months. For the present study, I have decided to eliminate eighteen cases; nine of them, because the patients were over twenty-one years of age when I first saw them; two are very mild examples of corpulence of the fat dwarf type; three are very mild instances of subthyreoidism; and four patients have been under observation for less than three months.

A synopsis has been prepared of the salient features of the fifty-two cases studied analytically (Tables I–IV). The cases are arranged in three series, of mild, moderate and severe grades, and in each series the age of the patients at the commencement of treatment has been used to determine the sequence of the cases in the series. All but four of the patients have been reduced in corpulence in demonstrable fashion, and each of those four patients has had a lapse in treatment of more than six months with recurrence of corpulence.

By way of illustration, I have prepared graphic records of six of the successful cases, selecting representatives from each series. From these graphic records, I can demonstrate the relative size of the patient at the commencement of treatment, at various points during treatment and at the end-point reached to date, thus showing the magnitude of the reduction of corpulence on a scale which allows us to compare cases and various stages of any one case. Further, by including scale representations of the dosage of thyroideum taken by the patient from time to time, I can demonstrate the relationship between the dosage and the reduction of corpulence and also the time taken to obtain the result in the case under consideration. From a few photographs in my possession of three of the patients whose cases I have recorded graphically, I can give a visual impression of the general improvement in the appearance of these patients. You must form an appreciation for yourselves of the other beneficial results of treatment, such as raised resistance to upper respiratory infections, improvement in menstruation, spontaneity of defæcation, as well as greatly increased physical activity and mental alertness, leading to loss of the depression and feelings of inferiority and frustration which are so prominent when patients seek our aid.

Index of Size.

From carefully kept records, one can readily demonstrate the results of treatment on the individual patients, but, when it became necessary to attempt to summarize the results and to make relative comparisons between sets of measurements of patients of all ages and sizes, it became apparent that an index of size was required and that I had to do a lot of arithmetic.

I have used standard weight-height-age tables supplied by the American Child Health Association to determine standards for any given age, by sexes, up to eighteen years; for those above that age, I have had to depend on insurance tables for weight-height-age expectations. For those from one year to six years, Woodbury tables were used and for those from six years to eighteen years the well-known Baldwin-Wood tables.

A weight index was readily devised by dividing the weight of the patient by the standard weight for the sex at the age and multiplying by one hundred.

Similarly, a height index was obtained by dividing the height of the patient by the standard height on any given occasion and multiplying by one hundred.

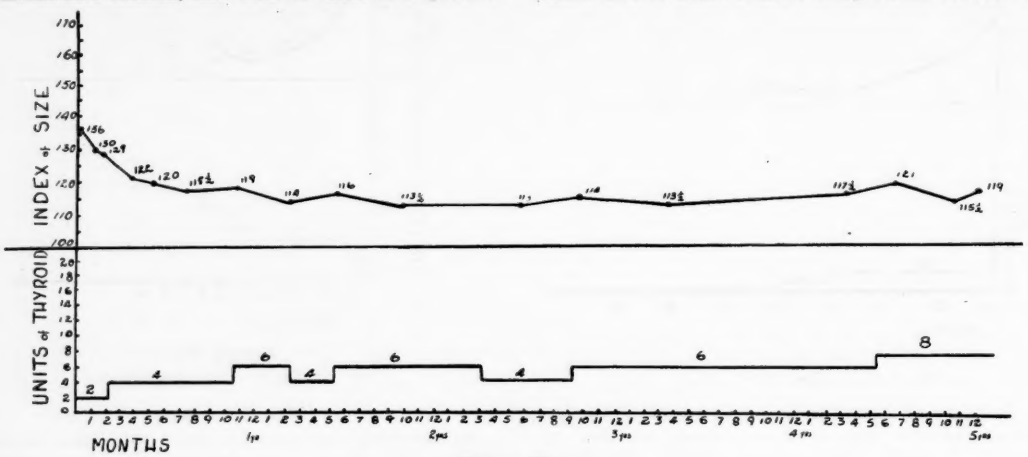

FIGURE IV.
Case No. 48, Moderate Series No. 22.

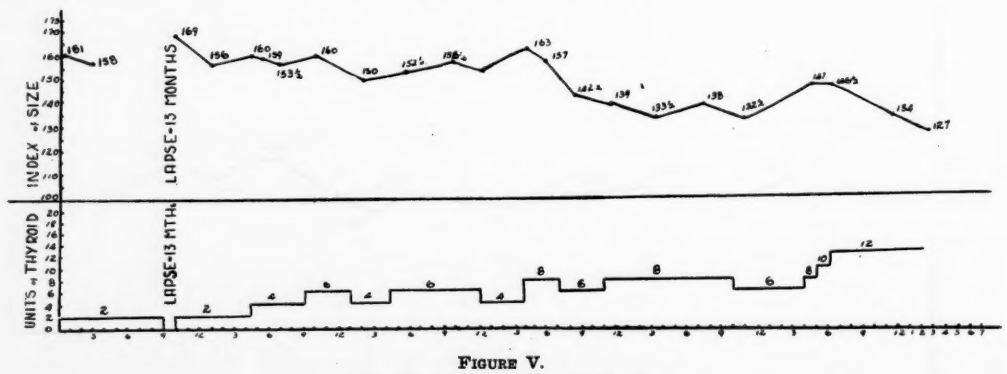

FIGURE V.
Case No. 36, Severe Series No. 9.

The size index used was obtained by dividing the weight index on any given occasion by the height index on that occasion and multiplying by one hundred.

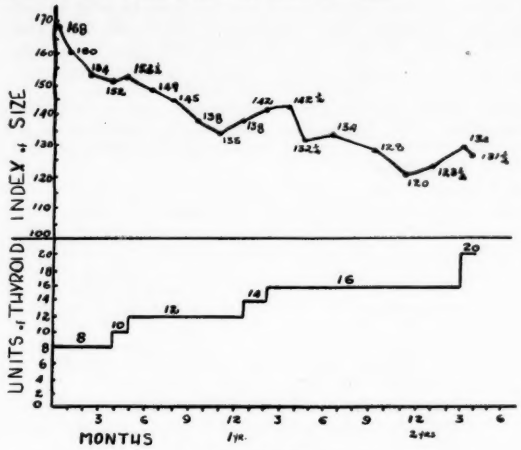

FIGURE VI.
Case No. 45, Severe Series No. 12.

The normal index of size for patients at any age of "heavy" architecture will be over 100 and may be as great as 115 or perhaps 120. The normal index of size for patients of "intermediate" build will be around 100 with variation, say, from 95 to 105. Similarly, the normal index of size for 'slender" patients is below 100 by the degree of slenderness which may reduce the index to 85 or even 80. An index of size in excess of that estimated as normal for the individual will be used as a measure of corpulence, independent of age or sex, allowing us to proceed to a demonstration of the results obtained for the patients studied.

I have calculated weight, height and size indexes for all of the patients at the beginning of treatment and at the last consultation, and have incorporated the figures in the appended synopsis. For the six cases selected for graphic representation I have made the calculations for each consultation throughout the period of observation.

Somewhat arbitrarily, I have chosen the index of size at 125 to separate the mild cases below that figure from the others above it and, similarly, I have used the index 150 to divide the moderate cases below it from the severe ones above it. We thus find that, at the commencement of treatment, fourteen patients were in the "mild" group, twenty-five were in the "moderate" group and thirteen were classified as severe examples of corpulence. I have tabulated certain summarized calculations as averages to search for points of interest (Table I).

We find that the members of the "severe" group were presented for treatment at an earlier average age, received ultimately more thyroideum daily and obtained the greatest degree of reduction.

We also find, still speaking in averages, that reduction of corpulence has been sufficient to improve the "mild" group almost to within normal limits, the "moderate" group to "mild" and the "severe" group to "moderate".

When it is taken into consideration that many of the patients are still undergoing treatment and that some have allowed treatment to lapse prematurely, it may justly be claimed that the efficacy of the system of treatment has been demonstrated. It is necessary to advance this claim to controvert many published statements giving prominence to the view that the paramount cause of simple obesity is exogenous (over-eating and lack of exercise) and that dietary restriction and strenuous physical exercises

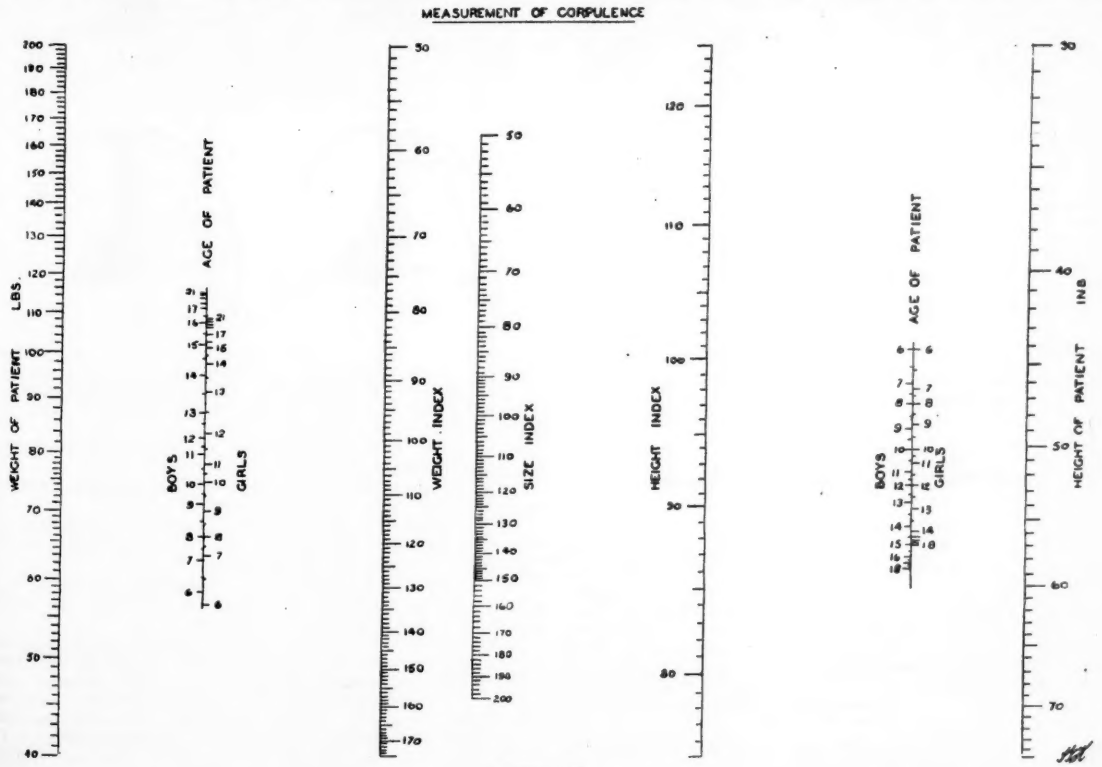

FIGURE VII.

are the chief principles of treatment. The final proof of the outstanding influence of thyreoid medication in the present clinical study is the correlation that exists between the curves of size index and of thyreoid dosage in each of the six cases which have been completely plotted. (Figures I to VI). It is submitted that the correlation is statistically significant and valid.

Summary and Conclusion.

A clinical study has been made of fifty-two cases of corpulence in childhood and adolescence by the pædiatrician who treated the patients systematically since January 1, 1939, for varying lengths of time.

The ætiology is predominantly endogenous, rather than exogenous or symptomatic, and the treatment has included oral thyreoid medication in unusually large dosage, supported by psychotherapy, dietetic control, congenial physical activities, accurate measurements and periodic observation and supervision.

By means of indexes of weight, height and size the efficacy of treatment has been assessed and demonstrated and, by the graphic plotting of valid statistical data, the significance of the thyreoid therapy in the results obtained has been proved.

It is no longer fair or reasonable to blame the children or their parents for the obesity, nor is it justifiable to underfeed the patients or to deny them the benefits of thyreoid medication in adequate dosage.

Addendum.

Normogram for Measurement of Corpulence.

I am indebted to my nephew, Mr. Ian Graham Hodges, B.Eng.Sc., for the preparation of the normogram published herewith (Figure VII).

Starting from the left, by placing a straight edge from the indication of the weight of the patient through the indication of the age by sex, one may read the weight index. Passing to the right of the normogram, starting from the indication of the height of the patient with a straight edge through the age by sex, one may read the height index. Finally, taking the central three lines and placing a straight edge through the indication of the weight index and the height index, one may read on the central scale the size index.

My nephew has pointed out correctly to me that the standard figures that I have used are actually mean standard figures or mid-standard figures and that the use of these mean standard figures makes slight errors occur towards the extremes; nevertheless, he and I are both satisfied that for clinical purposes the normogram should be very useful to avoid the percentage calculations which would have to be made without it.

DIFFICULTIES AND DISAPPOINTMENTS IN THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX.[1]

By CYRIL SWAINE,
Repatriation General Hospital, Springbank, South Australia.

FOR some years now it has been the opinion of medical men that the chief hope of cure of tuberculosis lies in the early detection and treatment of this disease. Mass radiography of members of the armed forces on their contemplated discharge has presented to us a large number of people who are suffering from a comparatively early stage of pulmonary tuberculosis. These have been treated under ideal conditions, in that there has been no shortage of hospital beds for their treatment; their pay and allowances have continued in spite of their enforced absence from work and their diet has been ordered and supervised by experienced dietitians.

It is natural that in the treatment of these patients a procedure so firmly established as artificial pneumothorax should play a large part. It is much too early to speak of "results" or "cures" in relation to these patients. However, it may be well to examine critically the experience which has been gained, so that when we are called upon in future to treat similar patients we shall be able to avoid some of the snares and pitfalls into which we have fallen in the series of cases to be discussed.

[1] Read at a meeting of the South Australian Branch of the British Medical Association on June 12, 1947.

DEFINITION OF TERMS.

The cases have been classified into "minimal", "moderate", and "extensive" disease in accordance with the classification adopted by the American National Tuberculosis Association.[a]

By minimal disease is meant disease on one or both sides, which does not involve a volume of lung greater than that lying above the second rib anteriorly and the body of the fifth thoracic vertebra posteriorly, and which does not contain a cavity. By moderate disease we mean either a diffuse mottling not involving a volume of lung tissue greater than the volume of one lung, or an exudative or productive lesion which involves a volume of lung not greater than one-third. Extensive disease is that in which the volume of lung affected is greater than one-third.

As pointed out by C. H. Fitts,[a] this classification has one drawback, namely, that the time factor is disregarded entirely. A "minimal lesion" is not to be confused with an "early lesion".

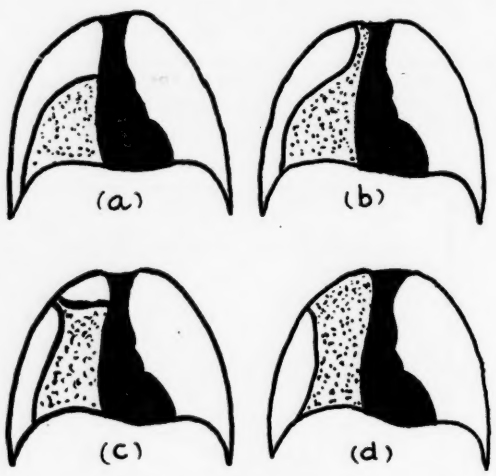

FIGURE I.
Types of pneumothorax. (*a*) Satisfactory pneumothorax. (*b*) Acceptable pneumothorax. (*c*) Unsatisfactory pneumothorax: Type I. (*d*) Unsatisfactory pneumothorax: Type II.

The classification of the types of pneumothorax follows that of Hjaltested and Törning.[a]

A "satisfactory" pneumothorax is one in which there is no adhesion between the lung and the chest wall or the mediastinum (except at the hilum).

A "partially satisfactory" or "acceptable" pneumothorax is one in which there are adhesions between the upper portion of the lung and the mediastinum.

There are two types of "unsatisfactory" pneumothorax. One has adhesions between the lateral aspect of the upper part of the lung and the chest wall, the extreme apex being free. The other has an area of extensive adhesion extending from the extreme apex down between the lung and chest wall toward the region of the axilla (Figure I).

It has been clearly proven, by the work of various people,[a][b][c] that the prognosis is much worse following reexpansion in cases in which pneumothorax is not completely satisfactory, than it is in cases of anatomically perfect and concentric collapse.

By "active" disease is meant disease in which one or more of the criteria of activity mentioned by C. H. Fitts[a]

are present. The most important of these is the demonstration of tubercle bacilli, in either sputum or gastric washings. In all except two of our patients, who were treated by pneumothorax, tubercle bacilli were found in one or other of these secretions. The other two showed radiological evidence of activity.

The conditions which are labelled "inactive" show none of the signs of activity. It would be more correct to speak of "apparently inactive" states, since the absence of any of the criteria of activity does not necessarily prove that the lesions are inactive.

RECORDS.

General Background.

The cases upon which this study is based are of those South Australians who served in the armed forces of the Commonwealth in the war which began in 1939 and who are now receiving treatment and supervision for pulmonary tuberculosis from the Repatriation Department. In all, 226 patients have been diagnosed as suffering from pulmonary tuberculosis. Of these, 112 patients have been treated by artificial pneumothorax. Table I shows the distribution of patients among the various types of disease and the number in each class who have received artificial pneumothorax therapy. The cases in which the attempt to induce a pneumothorax was unsuccessful and those in which this form of treatment was declined by the patient are also included. Most of these pneumothoraces were induced in service hospitals before the patients were discharged from the army. Some were induced in the Repatriation General Hospital, Keswick. A few were induced at the Bedford Park Sanatorium.

FIGURE II.
Serous effusion: Grade I.

Complications Present in this Series.

Serous Effusions.

It is convenient to divide serous effusions, which are common complications of artificial pneumothorax, into four types. (i) Grade I—a minimal pool of fluid just sufficient to occlude the costophrenic angle (Figure II). (ii) Grade II—a pool consisting of a few ounces of fluid, not up to the level of the dome of the diaphragm. These are often transient though they may be persistent (Figure III). (iii) Grade III—a considerable effusion, extending above the dome of the diaphragm, which persists (Figure IV). (iv) Those following adhesion section.

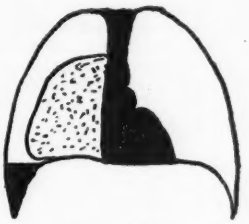

FIGURE III.
Serous effusion: Grade II.

FIGURE IV.
Serous effusion: Grade III.

Table II shows the frequency of the various effusions among different types of artificial pneumothorax.

It is easy to see that pleural reactions have been most frequent in patients with unsatisfactory pneumothorax.

In addition, four of the 16 cases of grade III effusions in the unsatisfactory pneumothorax group must be regarded as cases of potential empyema. These will be discussed under empyema. Eight of the cases of grade III effusions were associated with obliterative changes in the pleural space. In six cases this necessitated early abandon-

TABLE I.
Class of Patient in Relation to Pneumothorax.

	Minimal Disease.				Disease of Moderate Extent.				Extensive Disease.				Pleural Effusion.	Primary Disease.	Total.
	Unilateral.		Bilateral.		Unilateral.		Bilateral.		Unilateral.		Bilateral.				
	Active.	Inactive.	Active.	Inactive.	Active.	Inactive.	Active.	Inactive.	Active.	Inactive.	Active.	Inactive.			
Pneumothorax: Number of inductions	37	—	4	—	32	—	26	—	7	—	4	—	—	—	112
Pneumothorax: Number of unsuccessful attempts	3	—	—	—	1	—	2	—	—	—	—	—	—	—	6
Pneumothorax declined by patient	2	—	—	—	—	—	1	—	—	—	—	—	—	—	3
Number of cases	53	29	10	6	36	2	40	14	7	—	12	—	9	7	226

TABLE II.
Frequency of Effusions Among Different Types of Artificial Pneumothorax.

Type of Effusion.	Type of Pneumothorax.				
	Satisfactory.		Acceptable.		Unsatisfactory. (45)
	Achieved without Pneumolysis. (31)[1]	Achieved by Adhesion Section. (20)	Achieved without Pneumolysis. (18)	Achieved by Adhesion Section. (5)	
Grade I	2	4	7	1	7
Grade II	1	2	1	Nil	6
Grade III	7	1	2	1	16
After pneumolysis	—	5	—	—	1

[1] Figures in parentheses indicate the total number of pneumothoraces of the type stated.

ment of the pneumothorax. No systematic attempt was made to prove whether these effusions contained tubercle bacilli or not, because the facilities were not available.

Empyemata.

Under the term empyema are included cases in which pus—that is, thick opaque fluid with a high cell content—was present in the pleural space. There were five such cases. All occurred as a complication of unsatisfactory pneumothorax. Two were cases of pure tuberculous empyema. In one of these the pleural space has become obliterated and free of pus. The other remains as one of active tuberculous empyema. One showed a mixed infection with tubercle bacilli and staphylococci and it remains active. The other two were pure staphylococcal empyemata, as far as can be determined, and both responded well to the intramuscular and intrapleural use of penicillin. In each case the pleural space has been obliterated, only thickened pleura being left.

In addition to the five empyemata there are four cases which have been included with grade III effusions but which must be regarded as possible empyemata.

One occurred in an acceptable pneumothorax (no adhesion section was attempted) three years after the induction of collapse. The pleural space has become partially obliterated from below. Recently the character of the fluid of the effusion has changed from a faintly cloudy to a milky consistency.

One occurred in a frankly unsatisfactory pneumothorax (Type 2) in a man, aged forty-five years, who had extensive cavernous disease of his right lung. Tubercle bacilli were recovered from the fluid, which had a high cell content (predominantly polymorphonuclear leucocytes). Two have occurred following division of adhesions. Subsequent thoracoscopic examination has shown tuberculous tissue involving the area of the lung surface which was previously adherent to the chest wall.

Obliterative Pleuritis.

Obliterative pleuritis includes two types of obliterative process occurring in the pneumothorax space, namely, the "wet" type—that is, obliteration associated with a persistent effusion—and the "dry" type—obliteration without evidence of effusion. In six cases of the "wet" type the obliteration made it necessary to abandon the pneumothorax. In four cases "dry" pleurisy rendered continuation impossible. Table III shows the frequency of these obliterative processes among the different types of artificial pneumothorax.

These obliterative processes occurring in artificial pneumothorax are very undesirable in that they prevent the completion of the planned course of treatment by artificial pneumothorax.

Incompletely Expanded Lung.

In five cases it was obvious, on X-ray examination following the abandonment of the pneumothorax, that the volume of the lung which had been caused to collapse was much less than it was prior to the application of collapse therapy. It was also obvious that there was little likelihood of the lung recovering either its normal size or its normal function. In each case there had been a grade III effusion and, after reexpansion, evidence of thickened pleura.

In one case there seemed to be some evidence that intrapulmonary factors as well as pleural thickening accounted for the failure to reexpand. Bronchoscopic examination had not been carried out in this case so it was not possible to say whether there was any bronchial occlusion or not. In one case severe and repeated hæmoptysis occurred only after reexpansion of a collapsed lung. This may have been the natural course of the disease, but one feels prompted to ask whether it may not have been due to some alteration of relations within the lung, which rendered hæmoptysis more likely to occur.

Mediastinal Hernia.

Mediastinal hernia occurred in four cases and consisted merely of a bowing of the weak anterior portion of the mediastinum to the opposite side and in no case did it produce any serious effects. In one case it was felt that the collapsed lung was pushed too far over to the opposite side, so air was withdrawn from the pneumothorax space.

Air Embolus.

Air embolus occurred in two cases. In each case there was a sensation of pins and needles down one side of the body and in each case there was a transient hemiparesis. One patient lost consciousness. There was no residual paralysis in either case. Both patients felt well and were permitted to go home about four hours after the onset of their symptoms.

Contralateral Spread.

In seven cases of bilateral disease, spread of the disease occurred in the uncollapsed lung. In six cases in which there had been no evidence of disease in the contralateral lung, a radiological lesion later appeared and spread in spite of the presence of a pneumothorax on the side which had first shown evidence of a tuberculous lesion. The frequency with which spread occurred in the contralateral lung in the various types of pneumothorax is shown in Table IV.

The Relationship between the Type of Disease Present, the Type of Pneumothorax Achieved and the Ultimate Fate of the Pneumothorax.

Cases in which Cavitation was Visible Radiologically.

There were 47 cases in which cavitation was visible radiologically. It is rather important to give some consideration to them as the prime importance of artificial pneumothorax is in the control of the mechanical factor—the cavity—in pulmonary tuberculosis. The facts derived from a study of these cases are summarized in Table V (bilateral cavitation in one case).

It is seen that closure of the cavity has been achieved by only 16 of the 48 pneumothoraces so far. There was a very high incidence of effusion and two of these effusions have been discussed as examples of threatened empyema. Twenty of the pneumothoraces have been abandoned.

TABLE III.

Frequency of Obliterative Processes Among Different Types of Artificial Pneumothorax.

Type of Obliterative Process.	Number of Cases.	Type of Pneumothorax.					
		Satisfactory.		Acceptable.		Unsatisfactory.	
		Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Type I.	Type II.
Wet	8	1 (abandoned)	2 (1 abandoned)	2 (both abandoned)	—	3 (2 abandoned)	—
Dry	10	2 (1 abandoned)	3	2 (1 abandoned)	—	2 (1 abandoned)	1 (abandoned)

TABLE IV.

Frequency of Spread of Disease in Contralateral Lung in Various Types of Pneumothorax.

Type of Disease.	Type of Pneumothorax.					
	Satisfactory.		Acceptable.		Unsatisfactory.	
	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Type I.	Type II.
Bilateral disease	—	1	3	1	2	—
Unilateral disease		1 (empyema)	1	—	2	1

TABLE V.

Results in Cases in which Cavitation was Visible Radiologically.

	Type of Pneumothorax.					
	Satisfactory.		Acceptable.		Unsatisfactory.	Totals.
	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.		
Cavity closure	6	7	3	—	—	16
Empyema	—	—	—	—	2	2
Effusion	4	6	4	1	15	30
Contralateral spread	1	1	1	—	3	6
Number of cases	10	10	6	2	20	48

Twelve are being maintained in the hope that they may cause cavity closure later. In two of these cases it may be possible to divide some of the adhesions which make the pneumothorax unsatisfactory.

In no case has cavity closure been brought about by an unsatisfactory pneumothorax.

Minimal Lesions.

In 41 cases of minimal lesions the subjects have been treated by artificial pneumothorax. What has occurred in these cases is summarized in Table VI.

In 28 of these cases treatment by artificial pneumothorax has been continued. Twelve patients, however, have pneumothoraces which are not completely satisfactory, and therefore the probability is that the prognosis after reexpansion will not be very good.

In 12 cases the pneumothorax has had to be abandoned, a high proportion of cases in which, even though the disease is of minimal extent, pneumothorax cannot be made to follow completely the course planned for it.

Disease of Moderate Extent.

Fifty-eight patients with disease of moderate extent were treated by artificial pneumothorax, collapse therapy being used in three cases on both lungs either simultaneously or alternately. Events in the different types of pneumothorax are shown in Table VII.

It is seen that 41 patients in this group continue to be treated by artificial pneumothorax. In 17 of the 41 cases, however, the collapse is not anatomically perfect and therefore we may not anticipate a good prognosis following reexpansion.

Abandonment of the pneumothorax has been necessary already in 18 cases.

Therefore we may legitimately hope for a good prognosis in 24 of the 56 subjects of moderate disease treated by artificial pneumothorax.

Extensive Disease.

In eleven cases of extensive disease an attempt was made to treat the condition by artificial pneumothorax. What has happened in these cases is shown in Table VIII.

TABLE VI.

Course of Pneumothorax Treatment in Cases with Minimal Lesions.

	Type of Pneumothorax.						
	Satisfactory.		Acceptable.		Unsatisfactory.		Totals.
	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Type I.	Type II.	
Continued	9	7	4	2	5	1	28
Abandoned	1	—	1	—	5	5	12
Supplemented	—	—	—	1 (phrenic crush)	—	—	1
Number of cases	10	7	5	3	10	6	41

TABLE VII.
Course of Pneumothorax Treatment in Cases of Disease of Moderate Extent.

	Type of Pneumothorax.						
	Satisfactory.		Acceptable.		Unsatisfactory.		Totals.
	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Type I.	Type II.	
Continued	14	10	10	—	6	1	41
Abandoned	3	—	1	—	4	10	18
Supplemented	—	1 (phrenic crush and pneumo-peritoneum)	—	1 (contralateral artificial pneumothorax)	—	—	2
Number of cases	17	11	11	1	10	11	61

TABLE VIII.
Course of Pneumothorax Treatment in Cases of Extensive Disease.

	Type of Pneumothorax.						
	Satisfactory.		Acceptable.		Unsatisfactory.		Totals.
	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Type I.	Type II.	
Continued	—	1	1	—	—	—	2
Abandoned	—	—	1	—	2	6	9
Supplemented	—	—	—	—	—	—	—
Number of cases	—	1	2	—	2	6	11

Here only two of the pneumothoraces have been continued, but one of these—the satisfactory one following adhesion section—must be regarded as a case of threatened empyema. One of the acceptable pneumothoraces also threatens to develop into a pyopneumothorax. Of the unsatisfactory Type I cases, one has developed into a tuberculous empyema and the other threatens to develop into one. All six of the unsatisfactory Type II pneumothoraces had to be abandoned because of technical considerations and persistent effusions. In one of these there was contralateral spread during the course of artificial pneumothorax therapy.

The Fate of the Pneumothoraces Induced.

The fate of the pneumothoraces induced is shown in Table IX.

It is obvious that it is in the unsatisfactory types of pneumothorax that early abandonment of this form of treatment is forced upon us (31 out of 38 cases).

Of the 77 cases in which artificial pneumothorax is being continued, 33 belong to the acceptable and unsatisfactory groups and hence we are not justified in expecting a good prognosis following reexpansion. The discrepancy between the number of pneumothoraces which are being continued and the number of cases in which artificial pneumothorax treatment is being continued is accounted for by the fact that bilateral pneumothorax is being used in two cases.

Of the 112 cases of artificial pneumothorax treatment we may expect good results in 44. This does not mean that the prognosis will be poor for all of the remaining patients, but it is probable that it will be so for the majority of them.

DISCUSSION.

The most serious complication of artificial pneumothorax in this series, as in others, is tuberculous empyema. It is fortunate that only two of the five cases mentioned here remain as chronic empyemata. The pleural space has been obliterated in the other three cases. The outlook for the former two patients is very poor.

Whether the four cases included as "threatened" empyemata will develop into pyopneumothoraces remains to be seen. In three of the cases methylene blue has

TABLE IX.

Fate of Pneumothorax.	Type of Pneumothorax.						
	Satisfactory.		Acceptable.		Unsatisfactory.		Totals.
	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Achieved without Pneumolysis.	Achieved by Adhesion Section.	Type I.	Type II.	
Continued	27	19	15	4	11	3	79
Abandoned	4	—	3	—	11	20	38
Supplemented	—	1	—	1	—	—	2
Number of pneumothoraces	31	20	18	5	22	23	119

been injected into the pleural space in an attempt to discover whether a broncho-pleural fistula exists. In no case was methylene blue demonstrated in the sputum. Thorascopic examination in two of the cases has revealed tuberculous tissue involving the visceral pleura. The gas in the pleural space in these cases has not been analysed, but we hope, as a result of the good offices of Dr. R. C. Bassett, to be able to perform this analysis in the future. The importance of this investigation lies in the fact that Coryllos,[10] on the basis of the composition of pleural air in cases of empyema, has advanced the theory that a broncho-pleural fistula exists in every case of tuberculous empyema. This theory is not universally accepted. However, if fistulæ are found in the cases discussed above, we must accept them as additional evidence of the likelihood of empyema.

The incidence of pleural effusions does not seem to be unduly high. Although tubercle bacilli have been demonstrated in but few of the serous effusions in these cases, work which has been published in the literature of this subject leads one to believe that most of the grade II and grade III effusions must have been tuberculous.[11] It is only when the effusion has become purulent or when it has led to the obliteration of the pleural space that it has become a danger in artificial pneumothorax therapy.

Obliterative processes in the pleural space have led to the abandonment of ten artificial pneumothoraces. This will eventually happen in the remaining eight cases of obliterative pleuritis. One can but hope that in the latter eight cases the healing process in the lung will be well advanced before the pneumothorax space is finally closed.

It has been shown by bronchospirometry that every reexpanded pneumothorax lung is grossly impaired so far as its efficiency as a respiratory organ is concerned.[6][7][8] In the five cases mentioned here there is gross radiological evidence of the failure of the lung to return to its former size.

Air embolism is an exceedingly dangerous complication of pneumothorax. We have been fortunate that the effects on the two patients in whom this complication occurred have not been more serious.

Other complications which may occur with artificial pneumothorax are hæmothorax (especially after adhesion section), "spontaneous" pneumothorax, and pleural shock. These complications have not occurred in this series.

The failure to close the cavities present in 32 of 48 cases is especially disappointing. Rafferty[5] states: "Collapse therapy has not greatly altered the fundamentals of management of pulmonary tuberculosis. It has, however, furnished a means of overcoming the mechanical factor in tuberculous disease, *i.e.*, the cavity. The danger of bronchogenic dissemination may thereby be reduced and the chances of recovery infinitely improved."

This means has proved singularly ineffective in our cases. It is not possible to say whether the 16 cavities which closed while the patient was under treatment by artificial pneumothorax would have closed without collapse measures.

Artificial pneumothorax has been well nigh useless as a method of treatment in the cases of extensive disease. The small number of cases of minimal and moderate disease in which pneumothorax can be regarded as an effective measure is very disappointing.

Apart from empyema and air embolus it is not the complication which kills the patient in whom pneumothorax is unsuccessful. His death is caused eventually by the spread of disease to other parts of the lungs. It has been shown by many workers that this spread with its fatal termination occurs least frequently in cases in which a "satisfactory" pneumothorax is established, more frequently in those with the "acceptable" type and most frequently with "unsatisfactory" collapse. The world literature on this important subject has been reviewed by Bloch, Tucker and Adams.[12]

Let us put out of our minds for a moment the concept of artificial pneumothorax as a form of treatment for pulmonary tuberculosis. Let us regard it purely as a means of discovering whether pleural adhesions are present or absent. We may now ask what the presence of adhesions means.

The experiments performed by A. H. Penington[12] would seem to indicate that, in the rabbit, the pleural membranes are able to deal with tubercle bacilli of the bovine type much more effectively than is lung tissue. There is also ample evidence that the pleura of human beings is able to deal effectively with a single dose of tubercle bacilli. According to Coryllos's theory it is only when there is continuous or repeated soiling of the pleural space by way of a broncho-pleural fistula that empyema occurs. A. H. Penington[13] reports eleven cases of tuberculous empyema. In every case there was rupture of a pulmonary tuberculous focus into the pleural space.

There are two possible ways of accounting for the presence of pleural adhesions. One is that they depend upon the entirely fortuitous position of disease in the lung tissue which lies just beneath the pleura. The other explanation is based on the assumption that the pleural membranes are able to overcome tubercle bacilli far more efficiently than is lung tissue. When the lungs of a patient have high resistance, the disease will not involve the pleural surface and adhesions will not form. When the resistance in the lungs is low, however, the peripheral spread of the disease will be stopped only when the more efficient organs of resistance—the pleural membranes—are brought into play. In this case pleural adhesions will form. If the assumption upon which this second explanation is based is correct, then it may be said that the presence of pleural adhesions indicates relatively low resistance in the lung. It would be expected that the relation between the extent of the adhesions and the amount of lung involvement would indicate the degree of resistance. In this case the poor prognosis of patients with unsatisfactory pneumothoraces is explained by their low resistance to the disease, and not by the fact that their pneumothoraces are ineffective. The good results in patients with pneumothoraces which are free from adhesions would be accounted for by the high resistance present in such cases. Against this is the fact that in unsatisfactory pneumothoraces with divisible adhesions the outlook is materially improved by pneumolysis.

The greatest difficulty in assessing the results of pneumothorax therapy lies in the lack of adequate controls. Mattill, Nemec and Jennings[4] used as their controls subjects in whom they considered that the indications for artificial pneumothorax were fulfilled, but in whom no pleural space was found. This does not seem to be an entirely satisfactory control group. Potter[14] selected as his controls subjects for whom he considered that pneumothorax was the treatment of choice, but who had been treated in the days prior to the widespread use of collapse therapy. His results and the objections to the use of these patients as controls are discussed by Rafferty.[5]

It would appear that there is only one satisfactory way to arrive at the truth in regard to the efficacy of satisfactory pneumothorax. A long series of patients in whom the indications for air collapse are present should be taken. Pneumothoraces should be induced. If necessary, adhesions should be divided to make the pneumothoraces satisfactory. The satisfactory pneumothoraces so achieved should then be divided into two groups—those in which adhesion section was necessary and those in which it was not. The lungs of one half of the patients in each group should then be re-expanded. All patients should be treated by the same sanatorium régime, unless something contraindicates that course. After a sufficient period of observation (at least ten years) the results should be assessed. Until such a study is carried out, justification for the continued use of artificial pneumothorax in pulmonary tuberculosis is based on the anatomical and physiological principles enunciated by A. H. Penington in his article in THE MEDICAL JOURNAL OF AUSTRALIA of May 24, 1947. Another consideration is that mentioned by C. H. Fitts[1]—the partnership between patient and physician which must exist during the course of pneumothorax treatment. This association might not be so permanent, were no "active" treatment of the tuberculous lesion undertaken.

In contemplating the treatment of pulmonary tuberculosis by artificial pneumothorax it is salutary to remember the report by Hurst and Schwartz of 1000 cases in which air collapse was planned. In only 117 cases was an effective pneumothorax induced and carried through to completion.

SUMMARY.

Throughout this paper it is the undesirable effects of artificial pneumothorax which have been emphasized—it is not pretended that a balanced view has been given. It is pointed out that on the basis of published figures we may expect good results in only 44 of the 112 cases which have been recorded.

It has been necessary to abandon artificial pneumothorax in 38 cases. In seven cases (five of empyema and two of unexpandable lung) an adverse effect can be attributed directly to the use of artificial pneumothorax. In only 16 of the 48 cases in which cavities were present was it possible to bring about closure of the cavity. Cavity closure was achieved only when the pneumothorax was of the "satisfactory" or "acceptable" type.

No apology is offered for the speculation contained in the discussion—a speculation which, though perhaps idle, may nevertheless prove interesting.

A scheme for determining the truth about the efficiency of satisfactory pneumothorax is suggested. It is probably not practical (even if desirable) to conduct such an investigation in Australia at the present time.

ACKNOWLEDGEMENTS.

I am grateful for the permission of the chairman of the Repatriation Commission to publish this paper.

I wish to thank sincerely Dr. J. G. Sleeman, consultant physician to the chest clinic, and Dr. A. Brayton Anderson, medical superintendent of the Repatriation General Hospital, Springbank, for their encouragement and helpful criticism during the preparation of this paper.

I wish to thank also Mr. Wallington of Keswick, who collected the files and films of the cases on which this study is based, thus infinitely reducing the amount of work necessary in collecting the data for compilation of tables.

My sincere gratitude is also due to Miss G. E. Wherrett for performing all the typing necessary in the preparation of a paper of this kind.

To Mr. J. R. Sheridan of the Education and Training Section of the Repatriation General Hospital, Springbank, who offered much sound advice in the setting out of this paper and who read the proofs, my thanks are due.

REFERENCES.

(1) C. H. Fitts: "The Modern Treatment of Pulmonary Tuberculosis", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1946, page 622.
(2) O. Hjaltested and K. Törning: "Clinical Aspects of Pneumothorax Therapy", *The British Journal of Tuberculosis*, Volume XXXIII, 1939, page 4.
(3) National Tuberculosis Association, New York; "Diagnostic Standards", 1935.
(4) F. L. Jennings, P. M. Mattill and F. C. Nemec: "Artificial Pneumothorax", *American Review of Tuberculosis*, Volume XLII, 1940, page 431.
(5) T. N. Rafferty: "Artificial Pneumothorax in Pulmonary Tuberculosis", 1944.
(6) H. C. Jacobaeus: "Bronchospirometry", *The Journal of Thoracic Surgery*, Volume VII, 1938, page 235.
(7) M. Pinner, G. Leiner and W. Zavod: "Bronchospirography", *The Journal of Thoracic Surgery*, Volume II, 1941-1942, page 241.
(8) M. Pinner, G. Leiner and W. Zavod: "Bronchospirometry", *Annals of Internal Medicine*, Volume XXII, 1945, page 704.
(9) A. H. Penington: "Pleural Adhesions: Their Effect on and Treatment in an Artificial Pneumothorax", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1947, page 644.
(10) P. N. Coryllos: Quoted by Rafferty, *loco citato*.
(11) P. M. Mattill, F. L. Jennings and F. C. Nemec: "Accidents and Complications of Artificial Pneumothorax", *American Review of Tuberculosis*, Volume XLI, 1940, page 38.
(12) R. G. Bloch, W. B. Tucker and W. E. Adams: "Standards and Criteria in Artificial Pneumothorax Therapy", *The Journal of Thoracic Surgery*, Volume X, 1941, page 310.
(13) A. H. Penington: "The Ætiology and Pathology of Tuberculous Empyema", *The British Journal of Tuberculosis*, Volume XXXIII, 1939, page 26.
(14) B. P. Potter: Quoted by Rafferty, *loco citato*.
(15) A. Hurst and S. Schwartz: "Pneumothorax Treatment of Pulmonary Tuberculosis", *American Review of Tuberculosis*, Volume XLV, 1942, page 132.

Reviews.

A SHORT TEXTBOOK OF MIDWIFERY.

THE fourth edition of "A Short Textbook of Midwifery" by Gibberd[1] includes new sections on the use of penicillin in puerperal infection, and on rhesus incompatibility as a cause of fœtal and neonatal disease.

Emphasis is laid upon the early adequate treatment of infections, but prophylaxis too is considered at length. Particular reference is made to the exclusion of possible sources of infection and the work of Leonard Colebrook on dust transmission is discussed.

The author stresses the requirement of a sense of proportion in antenatal care to avoid a ritual in which the special needs of the individual are submerged in the complexity of the routine, and comments on the importance of history and physical examination in the subsequent management of the pregnancy.

Indications and methods for termination in "albuminuria of pregnancy" are discussed at length, but the treatment of eclampsia itself is strictly conservative. The author, in his determination not to provoke a fit, states that the administration of fluids other than by mouth is "absolutely unjustifiable". However, it is generally considered that the judicious intravenous use of dextrose, 25% in distilled water, is beneficial, and that there is an occasional undoubted place for Cæsarean section in the treatment of this condition.

In discussing uterine inertia, he mentions how many of the most serious cases are associated with some degree of disproportion, and remain unrecognized until Cæsarean section has become a hazardous operation.

As a routine measure the author recommends upper segment Cæsarean section if the patient is not in labour or in rare cases in which speed is of very great importance, and the lower segment operation if labour has begun. He states that the decision to operate for any reason other than for absolute indications demands sound judgement and wide obstetrical experience—wise counsel in view of the difficulties which may be encountered, especially by the occasional operator.

There is an excellent section on trial labour and induction of labour by various methods is appraised. We should have welcomed some comments on the state of the cervix in relation to the probability of successful induction.

The book is well written and is pleasantly free from conflicting opinions. It presents in a small compass a sound conservative approach to the practice of midwifery, and should be most valuable to students and practitioners.

DISORDERS OF BLOOD PRESSURE.

THE volume first published in 1944 on blood pressure by John Plesch has met with such a favourable reception that the author has been induced to prepare a second edition.[2] The purpose of the volume is still the same, namely, to collect together the physical and physiological bases of blood pressure and its variations, and to draw practical conclusions concerning the important diseases characterized by changes in blood pressure. The author states that he has refrained from "rehashing" material that can be found in any standard book, and has restricted the scope of the book to those matters on which he has had personal experience through research and observation.

The book is still divided into three parts, but an appendix has now been added. Part I (pages 1 to 102) deals with the arterial blood pressure, Part II (pages 103 to 146) with venous pressure, and Part III (pages 147 to 225) with *angina pectoris*. The appendix (pages 226 to 301) mainly deals with the various forms of apparatus and experimental technique. In this edition references and case histories have been added, most of the chapters have been enlarged and some new ones added. An index is provided.

[1] "A Short Textbook of Midwifery", by G. F. Gibberd, M.B., M.S. (London), F.R.C.S. (England), F.R.C.O.G.; Fourth Edition; 1947. London: J. and A. Churchill, Limited. 8½" × 5½", pp. 572, with many illustrations. Price: 21s.

[2] "Blood Pressure and its Disorders, including Angina Pectoris", by John Plesch, M.D. (Budapest), M.D. (Germany), L.R.C.P. and S. (Edinburgh and Glasgow); Second Edition; 1947. London: Baillière, Tindall and Cox. 8½" × 5½", pp. 322, with many illustrations. Price: 21s.

The Medical Journal of Australia

SATURDAY, NOVEMBER 29, 1947.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

NURSES: THEIR RECRUITMENT AND TRAINING.

ONE of the most difficult problems of the present day has to do with the staffing of hospitals by nurses and their training. The problem is not confined to one country, and of this Australian hospital authorities do not need to be reminded. Though the war with its excessive demands on the services of men and women everywhere undoubtedly accentuated the problem, difficulties would certainly have arisen had there been no war. The increasing demand for treatment in hospitals was a feature of the pre-war era and the curtailment of hours of work was inevitable long before 1939. At present difficulties are so great that in many parts of Australia hospital beds cannot be occupied by patients because there are no nurses to look after them. If a statement on the subject had to be made at short notice, the first declaration would probably be that the shortage of nurses could not be divorced from the general question of manpower in the community. There are other considerations. Some of these were discussed in these columns on September 25, 1943, in the light of a publication by Sheila M. Bevington entitled "Nursing Life and Discipline". The remuneration offered to nurses has also to be considered. Every young woman is not fitted to be trained as a nurse. In September, 1943, we stated that young women seeking to follow the profession of nursing should have intelligence, adaptability, a certain amount of psychological insight and human sympathy; to this was added the opinion that the woman who had a sense of vocation would because of it become a better nurse. Those who attach great importance to adequate remuneration (and it is without question important) may be inclined to lose sight of these general requirements. What has to be borne in mind always is that solution of the nursing problem will not be found by payment of high salaries and the shortening of hours of work alone. One of the most noteworthy contributions made to this subject was published in London on September 11, 1947, in the form of a "Working Party" report[1]

[1] Report of the Working Party on the Recruitment and Training of Nurses; Ministry of Health, Department of Health for Scotland, Ministry of Labour and National Service; 1947. London: His Majesty's Stationery Office. 9½" x 6", pp. 128. Price: 2s. 6d.

The "working party" was appointed with a "steering committee" in January, 1946, "to review the position of the nursing profession". The working party comprised: Sir Robert Wood, Principal of the University College, Southampton (chairman); Miss D. C. Bridges, formerly resident tutor to the Florence Nightingale International Foundation; Miss E. Cockayne, Matron of the Royal Free Hospital; J. Cohen, Ph.D., of the Cabinet Office; and T. D. Inch, M.D., of the Department of Health for Scotland. Sir Robert Wood was also chairman of the "Steering Committee", which comprised five other departmental officers, two of whom, in addition to Dr. Inch, were medical graduates. It was pointed out to the working party that the establishment of a national health service would increase the demand for nurses above the present level and that its investigation might include the following questions: (i) What is the proper task of a nurse? (ii) What training is required to equip her for that task? (iii) What annual intake is needed and how can it be obtained? (iv) From what groups of the population should recruitment be made? (v) How can wastage during training be minimized? In approaching its problem the working party or committee (as we shall call it) tried not to form impressions but to discover facts which would speak for themselves—it took no formal evidence, but carried out work "in the field" with the help of trained investigators and it made "informal contact" with many bodies and organizations. Two assumptions were made—first, that the nursing problems were susceptible of scientific analysis and treatment, secondly, that Great Britain is potentially able to maintain adequate social and health services for its people, though the actual range of those services will depend on the amount of money that can be spent on them and on the men and women that can be spared to staff them—"any other assumption would mean that the community could neither safeguard its health nor nurse its sick". The committee holds rightly that the problem of staffing the nursing services cannot be isolated from other health and social problems, and it makes a statement which is quite obvious but which we have not seen made in any recent discussion on this subject—that the problem can be attacked quite as much by reducing the number of patients as by increasing the number of nurses. In other words the problem may be regarded as largely one of preventive medicine. Before an attempt is made to set out the views of the committee and their suggestions, some of which may almost be described as revolutionary, it must be stated that only four members have signed the report. The fifth, Dr. J. Cohen, is to issue a minority report. As will be shown later, Dr. Cohen gives an indication of the direction in which his ideas lie, but it is a pity that his minority report has not been included in the present document.

The difficulties of staffing now being experienced are in the opinion of the committee due to the growth of hospital services, the lack of adequate domestic staff and the efforts to reduce working hours. The key problem is stated to be the wastage during training. While some part of the wastage is without doubt due to the acceptance of candidates who lack the ability or the temperament to pursue the training successfully, the exceptionally high rate of wastage among student nurses suggests that they are expected to work and to train under conditions

which even many of those suitably equipped are not prepared to tolerate. (These were mentioned in our discussion in September, 1943.) Out of every hundred student nurses that entered on a course of training not more than fifty were found to remain at the end of the training period; in many hospitals the number was as low as thirty. It was thought that about one in every three of those who abandoned training before completing the course should not have been accepted at entry. This is a serious state of affairs, but at the same time understandable—the harassed matron or superintendent of nursing will need to be very sure of her judgements about candidates before she rejects volunteers for a service that is starved of personnel. This raises the question of the intelligence of nurses, and on this the committee has an excellent chapter. Clearly the level of intelligence or the educability of the potential nurse is of the greatest importance. The committee made a survey of the intelligence of 2400 hospital nurses, male and female, and found that the average ability was probably somewhat above that of the population as a whole. Many more nurses were found in the upper ranges of ability as compared with corresponding proportions in the general population, and fewer in the lower ranges. Some 16% of hospital female nurses were found to be in the top tenth of the population as regards intelligence. The committee thinks that standard tests of intelligence should be used with other techniques in the selection of candidates. It adds that candidates who, though suitable on personality and other grounds, are below the level of ability required to complete the course successfully, should be encouraged to accept employment in a capacity ancillary to nursing. In this regard reference is made to what is known in England as an "assistant nurse". To qualify for this title a candidate undergoes a two years' course of training; four weeks have to be spent at a preliminary training school and not less than one year in the nursing of those who are chronically ill. This aspect of the subject could be discussed at great length; it is an aspect that ought to receive consideration in any community which sets up rigid standards for the acceptance of candidates as trainees for a course of nursing, and need not be dealt with further at present.

The most interesting part of this report and the one to which the term revolutionary might be applied is the part that follows on what is described as a "job analysis" of nursing training. A trained investigator was engaged on this analysis for eight months. It is stated that during the three years which the average student nurse spends in general training (on the basis of a forty-eight hour week with four weeks' annual holiday) there are 6900 working hours. About 240 hours are generally devoted to lectures, part falling within the 6900 hours and part in off-duty time. Job analysis suggested that the student nurse in general training spends on an average a third of her first year, a quarter of her second year and a sixth of her third year in domestic work. The total for duties of a domestic kind during the three years is some 1500 hours—a little less than a quarter of the whole training period. It was found by a detailed study of nursing techniques that what is now absorbing 4100 hours of training might well be taught to the average student in some 1600 hours. The estimate of 1600 hours is not given as an exact assessment, since the time needed would depend on the quality of the student and the efficiency of the tuition; it is regarded as a reasonable working basis. The point that the committee makes is that the student nurse is almost invariably a student in name only. First and foremost she is an employee of the hospital and her training is largely incidental to her daily duties. The scheme suggested by the committee is one which would provide for all nurses a course of basic training lasting two years. In this scheme the first eighteen months would be devoted to the fundamentals common to all fields of nursing and the remaining six months to concentrated training in a particular field. At the end of this time, and subject to examination, nurses would be granted provisional State registration and would be entitled to the pay, status and title of State registered nurses. They would then be required to spend a third year in nursing practice under supervision before provisional registration would be confirmed. Though further details of the committee's scheme cannot be given, its statement must be recorded that to realize the broad conception of the general trend in the health services, the preventive aspect should be integrated with the curative throughout the whole course of nurse training. The two years' course suggested by the committee would be based on a five-day training week of forty hours with six weeks' annual holiday. This would call for the introduction of a three-shift system. The additional staff required to give effect to the committee's ideas is put down at 22,000 to 24,000 trained nurses and some 14,000 nursing orderlies.

It would be interesting to see how the idea of a shortened course of training for nurses would be received by those in high places in the nursing world in Australia. At present hospitals are receiving cheap domestic service from nursing trainees in a large part of their early days in training, and hospital boards will be loath to let this go. It must be pointed out that there is no reason to be dogmatic about the time required to train a nurse when the course lasts for four years in some Australian centres and for three years in others. There is a great deal to be said for the elimination of purely domestic work from the routine of a nursing trainee, in other words for her recognition as a student nurse rather than as part employee, part student (and student quite often in her time off duty as an employee). Unfortunately we cannot help wondering whether the committee has not put forward a view, which, though desirable, is not at present practicable. Dr. Cohen's minority report has been mentioned. He publishes a "note" about it. He states that he could not sign the report because the recommendations did not take sufficient account either of the relation between the planning of nursing and other health services and the planning of the country's manpower resources as a whole, or of the extent to which methods employed in psychological research can provide a scientific basis for determining nursing and medical staffing ratios or determining the length of training periods for nurses. There is also a note by the chairman written after the report was completed and in the press. He quotes a statement from the *Ministry of Labour Gazette* for May, 1947, dealing with manpower trends in Great Britain between 1946 and 1951. It is estimated that in that period there will be a drop of over 350,000 in the number of

women aged 15 to 59 in the population. The chairman adds that if account is taken of girls aged fourteen years in the working population at the end of 1946, the total drop becomes about 530,000. We must agree with his view that in these circumstances the progress of reform in the world of nursing is at the best bound to be slow.

Whether the committee may be said in its strivings to have had a glimpse of a perfect nursing world or not does not matter; this report is a document which demands the careful attention of all who have to do with the control of nursing in Australia.

Current Comment.

CEREBRAL LOCALIZATION.

WHEN the Ferrier lectures were inaugurated in memory of a distinguished British pioneer in neurology, it hardly lay within human sagacity to prognostigate that one day the address would be given by a Canadian surgeon, and that a time should come when the most important contributions to the study of the human cerebral cortex would emanate from the operating theatre. When David Ferrier was a student in Aberdeen he was taught that the brain, "the palace of the soul", was the organ of the mind, but that it functioned as a whole without differentiation of parts. At this time phrenology, though entering into a well-deserved anti-climax of ridicule, had still some true believers, and it is amusing to read in Herbert Spencer's biography that this philosopher when a young man could be attracted by a pretty girl and then assess her qualities in detail by observation of her "bumps". The honour of being the first to put localization of the cortex on a sound basis must assuredly be given to Broca, who declared that a small area in the left cerebral hemisphere of man was necessary for speech. Then came Hughlings Jackson, who, working alone and at first without recognition by his colleagues, showed that the evidence given by certain epileptic seizures indicated the existence of motor centres in the brain. Next came the startling experiments of Fritsch and Hitzig, who elicited contralateral movements by applying electrodes to a limited part of the cortex of the dog. As a result of this discovery Ferrier, then a young man, realized that Jackson's postulates might be capable of direct proof, and so he undertook a long series of experiments on animals, and in 1874 at the age of thirty-one delivered before the Royal Society of London the Croonian lecture on "Localization of Function in the Brain". Ferrier not only used electrical stimulation, but also studied both sensory and motor losses following circumscribed ablation of cortex. In 1884 Sir Rickman Godlee for the first time operated on a human brain tumour which had been localized by the new knowledge. In this manner brain surgery was born and soon important advances were made by Victor Horsley and later by Cushing, Dandy and others. The severe limitations imposed by the use of laboratory animals in the investigation of the central nervous system were early recognized. Whilst the mechanisms of heart, kidney, lung and liver may safely be regarded as identical in man, monkey and dog, the brain on the other hand is the one organ which in the human being belongs to a class by itself. Again the laboratory animal cannot describe its sensations in those very rare cases in which it retains consciousness. The new technique therefore arose of exposing the human brain under local anæsthesia, and then, with, of course, the knowledge, consent and collaboration of the patient, stimulating by improved methods, which prevented spread of current, specified and charted areas of the cortex.

W. Penfield, of Montreal, in his Ferrier lecture, "Some Observations on the Cerebral Cortex of Man", gives the results of over 300 operations under local anæsthesia, mostly undertaken to relieve Jacksonian epilepsy, in which the cortex was stimulated and special pains were taken to identify and record the precise region excited.[1] One of the first results of these experiments was to confirm the view already held by earlier investigators that there is a difference of spread or "march" of excitation in motor as distinct from sensory centres. The cortical motor representation is in large measure determined by function, whereas the sensory follows the segmental arrangement in cord and brain stem; thus a sensory seizure may pass down the ulnar aspect of the forearm to the little finger, then across the hand to the thumb and then up the radial side of the forearm. Another conclusion supporting earlier findings was that excision of a motor area produces only a temporary and shallow paralysis involving not only the muscles employed in the movement originally elicited, but those of the whole limb. It is to be noted, as in Cushing's similar stimulation of the motor cortex, that the patient is aware of the movement as something passive, that is to say, his volition has not been forced. Further, the movements are simple and never purposeful; flexion and extension can be evoked, but not a skilled action; stimulation of the laryngeal area will produce phonation but not speech. Similarly the excitation of the sensory cortex gives rise to sensations of tingling, numbness and the like, but never a feeling that an external object has been encountered. The same occurs with occipital stimulation; the patient becomes conscious of lights, colours and shadows, but never a picture of a definite object. When the electrode is shifted to the auditory region all that is evoked is ringing, rumbling, knocking or rushing. So far the only coherent and integrated sensations arising from cortical stimulation are those derived from the temporal lobe; here memories akin to dreams seem to be awakened.

Hughlings Jackson, as a result of his clinical experience of epilepsy, postulated three levels in the central nervous system: the lowest comprises the cord and brain stem; the cortex is the middle level; but the highest or volitional and mnestic centres had not been revealed. Pavlov, approaching the subject quite independently, declared the cortex to be the organ of conditioned reflexes, but not the highest centre for association and thought. Actually Jackson and Pavlov were in substantial agreement. "One must conclude", says Penfield, "that there is strong evidence in favour of the existence within the central nervous system of a place where neuronal circuits converge, thus making possible both sensory summation and the initiation of discriminative action. And yet there is nothing to suggest that this place is in the cerebral cortex." This is really going back to Herbert Spencer who wrote: "The seat of consciousness is that nervous centre to which mediately or immediately the most heterogeneous impressions are brought." Two possibilities open out here. One is a search for a circumscribed portion of the brain where the highest integration occurs and in which thought and consciousness are inherent. The *reductio ad absurdum* of such a quest was the belief of Descartes that the pineal gland was the seat of the soul. The other view is that consciousness is linked up with the totality of brain action—whether an epiphenomenon or not is immaterial to the issue. In support of this contention is the fact, which is now no longer open to dispute, that nociceptive impulses subserving pain go no further than the thalamus. No cortical stimulation, electric or traumatic, gives rise to the sensation of pain, nor does cortical destruction produce any abatement, and yet we know all too well how pain can dominate consciousness. Another fact was pointed out by Sherrington, namely, that no physical connexion can be found uniting, say by association fibres, many similar regions, right and left, in the frontal cortex. Sherrington concluded that synchronism of action was the most probable solution of this problem and this postulates that consciousness broods over the entirety of brain activity. Here we leave this fascinating if rather bewildering enigma. Further researches in the hands of capable surgeons, with possibly collaboration from scientifically trained psychologists, may simplify the issue or perhaps only deepen the mystery!

[1] *Proceedings of the Royal Society*, Series B, Number 376, July, 1947, page 329.

Abstracts from Medical Literature.

DERMATOLOGY.

Treatment of Cutaneous Tuberculosis with Promizole and Streptomycin.

P. A. O'LEARY, E. T. CEDER, H. C. HINSHAW AND W. H. FELDMAN (*Archives of Dermatology and Syphilology*, February, 1947) give a preliminary report which deals with the clinical application to cutaneous tuberculosis of promizole and streptomycin, which were found to be the least toxic and have demonstrated the greatest therapeutic effect of any of the substances which were used in treatment of tuberculous guinea-pigs. Streptomycin usually was given in doses of approximately 1,000,000 units per day as a streptomycin salt in an aqueous solution. At present 1,000,000 units of streptomycin are referred to as one gramme. Approximately 125 milligrammes were injected intramuscularly every three hours throughout the twenty-four hours. One patient received two grammes daily for a few weeks, but this dose was discontinued because the patient complained of nausea, lassitude and general debility. In general, however, the drug was of low toxicity and was tolerated well by the majority of the patients. The total doses per course of treatment varied from 15 to 128 grammes. Treatment with promizole offered little encouragement, because of the variations in therapeutic effects in different cases of the same disease. Results of treatment with promizole in cases of *lupus vulgaris* and of scrofuloderma were for the most part unsatisfactory. Streptomycin seemed to offer more encouragement from the beginning, but its therapeutic effects were of short duration in some of the cases in this series, especially among those patients who received relatively small amounts of the drug. The ulcerations and sinuses of the colliquative and suppurative processes responded most satisfactorily to treatment, and the patients' general condition improved somewhat. Streptomycin produces few reactions, but is more toxic than penicillin. Of the series of patients treated by the authors, those who had scrofuloderma and received the larger doses of streptomycin derived the most benefit. It appears that streptomycin, although not the ideal agent for the treatment of cutaneous tuberculosis and tuberculides, does offer considerable encouragement because of its therapeutic efficacy in guinea-pigs inoculated with tuberculosis and because of the varying degrees of improvement in human beings.

Nicotinic Acid Deficiency.

A. J. S. MCFADZEAN (*Glasgow Medical Journal*, April, 1947) describes a series of skin lesions attributable to nicotinic acid deficiency unassociated with any other symptoms or signs of such deficiency and occurring in otherwise normal individuals with a theoretically adequate nicotinic acid intake. Some experimental observations on the production of lesions are included. Sixty-two patients with such lesions of the skin were seen. All occurred in early summer in the Middle East in men of European stock. The duration of the lesions varied from three weeks to three months, the average being four weeks. All the patients described initial skin irritation and a burning sensation of varying intensity which gradually regressed with development of the lesions. Where flexures were involved, complaint was made of tightness of the skin. All stages in development of the characteristic skin lesions of pellagra were seen, varying from the acute erythema with œdema, vesiculation and crusting, to the classical hyperpigmented, hyperkeratotic plaques with desquamation. Clinically the skin lesions were consistent with the dermatitis of pellagra, and consideration of the distribution of the lesions and the relevant circumstances led to the hypothesis that they had been provoked by solar irritation. The lesions could be reproduced experimentally by exposure to sun or ultra-violet irradiation and could be prevented or cured by large doses of nicotinic acid. General and experimental observations suggested that the local manifestations of nicotinic acid deficiency, whether in the mouth or the skin, depended on local irritation; in the absence of this no lesion developed. A method of provoking dermatitis by ultra-violet irradiation has been described and should be useful in the diagnosis of subclinical or suspected nicotinic acid deficiency.

Resin of Podophyllum.

MAURICE SULLIVAN AND LESTER S. KING (*Archives of Dermatology and Syphilology*, July, 1947) state that resin of podophyllum is a cutaneous sensitizer of the first order. As used in the treatment of *condylomata acuminata*, it produces irritation of normal mucous membrane if it remains in contact with it for twenty-four or more hours. Fifty patients with *condylomata acuminata* were treated by topical applications of a 25% suspension of resin of podophyllum in liquid petrolatum according to the technique recommended by Kaplan. Complete cure was obtained by 48 patients with penile verrucæ of the moist type. Two patients with chronic perianal verrucæ experienced improvement but not complete cure. The perianal verrucæ were of the dry type and approximated *verrucæ vulgares*. One hundred *verrucæ vulgares* were treated with 25% solution of resin of podophyllum in oil and failed to undergo involution. The authors consider that there are two disadvantages to Kaplan's otherwise excellent method of treatment. (i) The preparation of resin of podophyllum in oil has a spreading effect and cannot be confined to the condylomata; irritation to the normal mucosa results. (ii) A liquid petrolatum suspension of a resinous mixture would not be expected to be penetrating. To overcome these disadvantages it is recommended that a solution of 20% resin of podophyllum in 95% alcohol be used instead of the suspension in oil. Thirty patients with *condylomata acuminata* were treated with the alcoholic solution, and much less irritation to the normal mucosa occurred. Of 100 *verrucæ vulgares* treated with applications of 20% solution of resin of podophyllum in 95% alcohol, 15% were cured. The dramatic response of *condylomata acuminata* to resin of podophyllum cannot be explained on the basis of Culp and Kaplan's theory that the drug produces a spasm of the small vessels, which in turn produces ischæmia, necrosis and sloughing. The main effect of resin of podophyllum appears to be directly on the epithelial cells. Two types of action are manifest. One is of direct degenerative character, while the other is the production of bizarre cell forms interpreted as distorted mitotic figures. These forms, which are called "podophyllin cells", are similar to so-called colchicine figures. It appears that resin of podophyllum exerts a profound and subtle action on cell metabolism, in contrast to salicylic or trichloracetic acid which produces a simple "fixing" or coagulation effect. Podophyllotoxin is easily susceptible to alkaline hydrolysis. Solutions of resin of podophyllum in sodium and potassium hydroxide proved inert when applied to *condylomata acuminata*, an indication that podophyllotoxin is probably the substance in resin of podophyllum responsible for its cytotoxic effect.

Topical Use of Penicillin in Treatment of Pyoderma.

B. J. HOFFMAN (*Archives of Dermatology and Syphilology*, May, 1947) states that primary and secondary pyogenic infections of the skin make up a large proportion of dermatological conditions among patients in the military services. Vesicular and intertriginous fungous infections of the feet with secondary invasion by staphylococci and streptococci affect a large number of patients admitted to military hospitals. This type of patient was cleaned each day as a routine measure with soaks of 1 in 9000 potassium solution and *débridement* was performed of necrotic tissue and localized pustules. Three groups were observed. In the case of the first group 5% sulphadiazine in a water-soluble ointment base was applied as a fixed dressing overnight; in the case of the second group penicillin ointment in a concentration of 800 units per gramme of water-soluble ointment base was likewise applied as a fixed dressing; and in the case of the third application of a thin dressing of old linen and gauze soaked in an isotonic solution of sodium chloride containing 800 units of penicillin per millilitre was followed by enclosure in a Bunyar bag overnight to prevent evaporation. These wet dressings were removed each morning and the part was allowed to dry. The group having wet dressings of penicillin was by far the most improved. The group treated with penicillin ointment improved more rapidly than that treated with the sulphadiazine preparation. The inflammatory process usually subsided in three or four days, leaving an irregular, partially desquamated area. At that stage the application of penicillin ointment was useful in preventing cracking and in controlling recurrent areas of low-grade infection. A fine papular erythematous dermatitis with intense itching affected 40% of the patients having wet penicillin dressings for five to six consecutive days. This seldom occurred before the fourth day. If therapy is omitted for one or two days treatment can usually be resumed for two or three day periods without the occurrence of a contact dermatitis. Intramuscular injections of penicillin can be given without effect on the local area of dermatitis. Occasionally a similar erythematous reaction occurs after penicillin ointment has been used continuously for six to ten days. An acquired cutaneous sensitivity to penicillin solutions is not uncommon among those who administer the injections. This dermatitis usually

involves the hands or face, occurring in some cases after several weeks of exposure, in others after several months. The rash takes the form of a diffuse erythema with scattered erythematous papules or small vesicles.

Acanthosis Nigricans Juvenilis Associated with Obesity.

S. S. ROBINSON AND S. TASKER (*Archives of Dermatology and Syphilology*, June, 1947) state that reports of about 400 cases of *acanthosis nigricans* have appeared in medical literature, divided almost equally into the adult type, occurring in persons after the age of twenty years without evidence of internal malignant growth, and the juvenile type. In some cases of the juvenile type either an internal malignant growth has developed while the patient was under twenty years of age or an internal malignant growth has appeared later in adult life. In the majority of the cases reported the condition has been associated with no internal pathological changes and the cause of the disease is unknown. Amongst the ductless glands reported to have disturbances associated with benign *acanthosis nigricans* are the thyreoid, thymus, chromaffin system, pituitary body, pancreas, suprarenals and gonads. No single type of dysfunction of the endocrine gland has been found consistently in benign forms of the condition. The authors believe that endocrine dysfunction may play an important role in the cause of the benign type of the disorder. Ten cases of *acanthosis nigricans juvenilis* associated with obesity are reviewed in the literature. The obesity is usually pituitary in type. The age of onset and spread of the condition of *acanthosis nigricans juvenilis* at the beginning or during the age of puberty are evidence in favour of the belief that gonads or sex hormones play a role in the propagation of the juvenile type of the disease. These findings tend to strengthen the authors' views on the involvement in endocrine dysfunction of the pituitary gland and gonads in the benign juvenile type of this disease associated with obesity.

UROLOGY.

Streptomycin in Urinary Infections.

A. M. KLEINMAN, T. P. SHEARER AND H. SPRINZ (*The Journal of Urology*, March, 1947) present their experiences of the treatment by streptomycin of eighteen patients with non-venereal urinary tract infections. Twelve of the eighteen patients had "neurogenic bladders" resulting from spinal cord injuries. The bacterial flora encountered were in the following order of frequency: *Streptococcus nonhæmolyticus, Bacillus proteus, Aerobacter aerogenes, Escherichia coli, Klebsiella pneumoniæ, Staphylococcus aureus* and *Streptococcus hæmolyticus*. All but the last two organisms are known to be resistant to penicillin and sulphonamides. With doses of three million units of streptomycin per day for three days, prompt sterilization of the urine was obtained, but only temporarily. With a dose of 1·2 million units per day for three days, the results were generally poor, except in the case of the one patient who did not have a "neurogenic bladder". The failure of streptomycin therapy of urinary tract infections in paraplegic patients with "neurogenic bladders" is attributed to the presence of one or more of the following conditions: persistent suprapubic fistula, urinary calculi, residual urine, repeated catheterization, inadequate dosage of the drug. Inadequate dosage, in the presence of conditions predisposing to failure, often leads to the development of drug resistance.

Ureteric Spasm.

J. P. PRATT (*The Urologic and Cutaneous Review*, February, 1947) states that much has been written about stricture of the ureter, but little attention has been given to transitory spasm of this channel. Five cases are described in women, one arising from an inflamed appendix, but the other four due to emotional causes and disappearing when the troublesome emotion had been dissipated. The author gives detailed instructions for recognizing the feel of a spastic ureter by careful and deep vaginal palpation. The emotional elements, which are really the originating stimulus for this right lower quadrant pain, nausea and vomiting, may be vague and difficult to determine. Moreover, the patient's anxiety over her physical symptoms often overshadows the more important emotional upset. The patient may not consider that her emotions have any bearing on her symptoms, or she may intentionally remain silent about her greatest anxieties, considering them too personal to speak about. The treatment is to dissipate worry, if possible, and to prescribe absolute rest for a few days.

Hypertension with Renal Cyst.

H. R. KREUTZMANN (*The Journal of Urology*, March, 1947) states that solitary renal cyst is one of the rarer renal causes of hypertension, but he reports two cases with a good result from removal of the cyst without nephrectomy. Moreover, the follow-up over several years has been favourable. The types of unilateral renal lesions reported in the literature as causing hypertension are very varied, but, in general, it appears to occur most often where there is reduced calibre of the renal vessels. A great deal of the confusion as to the efficacy of surgery is due to the fact that many authors rush into print and report a cure if the blood pressure remains normal for a few months after the operation, not realizing that the pressure can resume its original level several years later. However, the author has studied the literature carefully and has found fifty-four cases in which the pressure was normal four to five years after operation. In order to determine whether or not a full urological investigation is to be advised, certain points should first be realized. (i) It must be certain that the condition is not one of essential hypertension. (ii) It must be realized that no reduction in blood pressure will occur if the affected kidney is functionless. (iii) In all instances the arterial pressure must have been persistently elevated for some time. (iv) This elevation should have been for less than two years in order that cure may be expected, but in long-standing cases some relief is often obtained. (v) It is most important that the opposite kidney should be normal. In one of the reported patients, a woman of sixty-nine years, the pressure rose suddenly in association with undue fatigue and nervousness. Her pressure, taken many times in previous years, had been satisfactory. The sudden rise was to 252 millimetres of mercury (systolic) and 132 millimetres (diastolic). The recession to a normal level was maintained right up to the most recent check, namely, in 1946, three years after operation. The second case was that of a woman, aged fifty-nine years, with symptoms over a period of four years. A relative cure was obtained by operation, since she had only a moderate elevation at the end of three years after operation.

Trigonitis Associated with Cervicitis and Vaginitis.

W. J. REICH, J. L. WILKEY AND M. J. NECHTOW (*The Urologic and Cutaneous Review*, February, 1947) draw attention to the frequent association of symptoms of cystitis with acute and chronic cervicitis and vaginitis. The symptoms are frequency, urgency and dysuria, with a sensation of heaviness in the vagina and suprapubic aching and burning. The authors found that leucorrhœa and pruritus were common complaints associated with trichomonas and monilia vaginitis. Diagnosis was based on the physical findings of chronic cervicitis and vaginitis. On examination with the cystoscope, the mucosa of the trigone appeared hyperæmic and occasionally minute ulcerations were seen. If the patient failed to respond to local therapy to the vagina and cervix, upper urinary tract studies were made to rule out any of the more serious causes, such as pyelonephritis or tuberculosis. Trichomonas vaginitis was treated with a mixture of argyrol 20%, kaolin 40% and lactose 40% in powdered form. This powder was insufflated and capsules containing the same powder were used by the patient at home. The monilia vaginitis was treated with 1% aqueous solution of gentian violet, as well as with bicarbonate douches. Chronic cervicitis was treated by electro-cauterization and gentle dilatation of the cervix with sounds twice weekly.

Renal Tuberculosis.

C. P. MATHÉ (*The Journal of Urology*, March, 1947) reviews 98 cases of renal tuberculosis seen in two hospitals between 1930 and 1946. In 81 cases the disease was unilateral and was treated by nephrectomy. The author states that certain advances in operative technique help to ensure good wound healing and reduce mortality. When tuberculosis of the ureter coexists with the renal disease a complete nephroureterectomy should be performed in one operation. If the patient does not present a good operative risk, the lower half of the ureter may be removed later. Operative mortality is low, there being only one post-operative death among the 81 patients. The remote survival rate was found to be lower among patients with tuberculous lesions of other organs. Calculus coexisted in seven cases, cancer in three and renal hypertension in three. It was found that post-operative cystoscopic examination was necessary to allow diathermy treatment of vesical ulcers and dilatation of stricture of the lower end of the opposite ureter. The author states that the latter is common and is due to pressure on the intramural portion of the duct by the chronically inflamed bladder wall. If dilatation does not relieve the opposite kidney, cutaneous ureterostomy may be needed or transplantation of the ureter into the colon.

Bibliography of Scientific and Industrial Reports.[1]

THE RESULTS OF WAR-TIME RESEARCH.

During the war a great deal of research was carried out under the auspices of the Allied Governments. It has been decided to release for general use a large proportion of the results of this research, together with information taken from former enemy countries as a form of reparations. With this end in view, the United States Department of Commerce, through its Publication Board, is making a weekly issue of abstracts of reports in the form of a "Bibliography of Scientific and Industrial Reports". This bibliography is now being received in Australia, and relevant extracts are reproduced hereunder.

Copies of the original reports may be obtained in two ways: (a) Microfilm or photostat copies may be purchased from the United States through the Council for Scientific and Industrial Research Information Service. Those desiring to avail themselves of this service should send the Australian equivalent of the net quoted United States price to the Council for Scientific and Industrial Research Information Service, 425, St. Kilda Road, Melbourne, S.C.2, and quote the PB number, author's name, and the subject of the abstract. All other charges will be borne by the Council for Scientific and Industrial Research. (b) The reports referenced with an E number may be obtained in approved cases without cost on application to the Secondary Industries Division of the Ministry of Post-War Reconstruction, Wentworth House, 203, Collins Street, Melbourne, C.1. Copies of these are available for reference in public libraries.

Further information on subjects covered in the reports and kindred subjects may be obtained by approaching the Council for Scientific and Industrial Research Information Service, the Secondary Industries Division of the Ministry of Post-War Reconstruction, or the Munitions Supply Laboratories (Technical Information Section), Maribyrnong, Victoria.

PB 37588. MATTHES, M. *Untersuchungen über das Verhalten einiger Kreislaufgrössen bei hohen Beschleunigungen im Flugversuch und über den Einfluss von CO_2-zusatz zur Atemluft auf die Beschleunigungserträglichkeit* (Research on the behaviour of various circulatory functions under conditions of high acceleration in flight tests and on the influence of the addition of CO_2 to the respiratory air on the tolerance to acceleration). (*Deutsche Luftfahrtforschung* FB 1046.) April, 1939. 29 pp. Price: Microfilm, $1.00; Photostat, $2.00.

This report of the *"Deutsche Versuchsanstalt für Luftfahrt, E.V."* describes acceleration tests when pulling out of dives and steep spirals, with and without the addition of CO_2. A very definite increase in acceleration tolerance was observed when breathing CO_2. Results are based on statements of the individuals tested as well as on diastolic and systolic blood pressure measurements. Clonic cramps in the region of the sternocleidomastoideus and biceps muscles were also noted. A bibliography, data, tables and graphs are included. In German.

PB 18679. BIJOU, SIDNEY W., ED. The psychological programme in AAF convalescent hospitals: Preliminary draft. (AAF Aviation Psychology Programme Research Report 15.) February, 1946. 363 pp. Price: Mimeo, $2.00.

The mission of the convalescent hospitals is convalescent orientation, initial evaluation, progress evaluation, counselling, and research on psychological problems associated with convalescent activities. Psychological research included developing of criteria against which tests and procedures could be evaluated, constructing and validating tests, and judging effectiveness of the procedures. Tests and measurements are discussed rather fully. Examples are given in Appendix C and reports and forms in Appendix A. Many tables and charts and definitions of Rorschach symbols and terms are included.

PB 18677. CARTER, LAUNOR F., *et alii.* Psychological research on navigator training: Preliminary draft. (AAF Aviation Psychology Programme Research Report 10.) December, 1945. 292 pp. Price: Mimeo, $2.00.

Development of objective techniques for measuring navigation skill included the development of a series of ground measures and aerial measures of proficiency and the evaluation of their use. Techniques of selection and instruction of students, and the selection and evaluation of instructors, including the development of criteria of teaching performance, are all treated fully. Numerous data tables, photographs, a glossary of technical terms and an index complete the volume.

PB 18681. DAVIS, FREDERICK B. The AAF qualifying examination: Preliminary draft. (AAF Aviation Psychology Programme Research Report 6.) February, 1946. 349 pp. Price: Mimeo, $2.00.

Development and research work by the AAF Psychological Research Units on the qualification examination, the most important single examination used by the AAF during World War II. Examination is made of the principles underlying the construction and modifications of the test forms, and the uses of the examination. Development of verbal tests, information tests, practical judgement and reasoning tests, mechanical comprehension tests and perceptual tests is taken up in detail, and findings on each are summarized. This report has value as a guide to methodology in the field of psychometrics. Data tables and charts, curves and photographs, and a subject index are included.

PB 18682. GIBSON, JAMES J., ED. Motion picture testing and research: Preliminary draft. (AAF Aviation Psychology Programme Research Report 7.) February, 1946. 314 pp. Price: Mimeo, $2.00.

Research on the utilization of the motion picture medium for purposes of psychological testing and examining in the AAF and on the problems of administering and scoring motion picture tests. Additional teaching problems, such as the presentation of films to groups who view them from various angles, and the techniques of teaching with the film medium, are treated in a general way that will be of interest to psychologists and educators. Some unusual problems, such as the representation of three dimensional space by pictures, are brought out. Appendix gives a model lecture to accompany a training film and a list of psychological test films. Tables, charts, graphs and photographs are included.

PB 18684. JOHNSON, H. M., *et alii.* On the actual and potential value of biographical information as a means of predicting success in aeronautical training. (CAA Airman Development Division Report 32.) August, 1944. 53 pp. Price: Microfilm, $1.00; Photostat, $4.00.

This is a report of a study of the value of intercorrelated items of biographical information compiled from medical and training records of 480 students at the U.S. Naval Air Station, Pensacola, Florida, as predictors of eventual success or failure in the course, and also as predictors of velocity in learning. The value of the tests in selecting out the slow learners was found to be considerably less than for selecting potential failures. The analysis disclosed that there is only a very slight tendency for students who require extra time in the earlier stages to require more extra time than the average students in later stages. This report is one of a series growing out of the Pensacola project. See PB 18683 for final summary report and PB 18687 for detailed statistical analysis of data obtained in this study.

PB 18680. LEPLEY, WILLIAM M. Psychological research in the theatres of war: Preliminary draft. (AAF Aviation Psychology Programme Research Report 17.) No date. 372 pp. Price: Mimeo, $2.00.

Report on the activities of four psychological research detachments sent into the theatres of war to gather combat criterion data against which to validate the tests and procedures of the selection and classification programme, and to collect information on the requirements of the tasks of combat airmen, in order to keep training standards apace with requirements. There is a special chapter on the measurement of fighter pilot proficiency in relation to the prediction of fighter combat proficiency and the result of fatigue factors in long-range missions. The development of proficiency tests for air crew specialization, including the development of leading crew aptitude tests for the use of theatre personnel, is discussed. Numerous data tables and charts are included.

PB 18683. MCFARLAND, ROSS A., AND FRANZEN, RAYMOND. The Pensacola study of naval aviators: Final summary report. (CAA Division of Research Report 38.) November, 1944. 141 pp. Price: Microfilm, $1.50; Photostat, $10.00.

In 1939 the Committee on Selection and Training of Aircraft Pilots undertook a major study in the selection and training of aircraft pilots at the Pensacola Naval Air Station. The history and major findings of this study are summarized in this report, except for the investigation of biographical items as predictors, which is given in a separate report (see PB 18684). This investigation involved the administration of a large number of psychological and physiological tests to approximately 1000 cadets and officers in order to determine whether certain of these tests would differentiate the successful pilots from the washouts. A description of the experimental procedure, the psychological and physiological

[1] Supplied by the Information Service of the Council for Scientific and Industrial Research.

tests and measures used, and the groups employed in the investigation are presented. Only such general statistical data as are necessary for an evaluation of these instruments as predictors of flight success are discussed. For detailed statistical analysis of data obtained, see PB 18687.

PB 18678. WICKERT, FREDERIC, ED. Psychological research on problems of redistribution: Preliminary draft. (AAF Aviation Psychology Programme Research Report 14.) February, 1946. 457 pp. Price: Mimeo, $2.00.

The main functions of the redistribution station were to evaluate qualifications of combat returnees, and to recommend a suitable assignment for them, by means of medical examinations and classification interviews. The use of psychological tests as an aid in judging ability, knowledge and aptitudes, and to identify men needing special study, was developed. Tests were set up to discover combat leaders and instructors, and psychological studies of anxiety reaction to combat were made. Appendices give examples of forms, tests, data assembled, glossary of technical terms and tables.

PB 18381. LINDSLEY, DONALD B. A study of performance under speed stress. (NDRC Applied Psychology Panel 609; Informal Memo. 28.) September, 1945. 10 pp. Price: Microfilm, 50c.; Photostat, $1.00.

This memorandum records the results of an attempt to measure the effect of artificially induced stress on performance. A reporting test which required rapid discrimination and counting of figures in a series of circles resembling oscilloscope screens was used. In terms of the experiment it appears that there may be two reactions to speed stress: (i) an increase in speed and errors with relative inefficiency and (ii) stable performance and efficiency with little increase in speed and errors. The results suggest that individuals showing the latter type of reaction constitute a small group and might be recommended for critical tasks where errors may be expensive in personnel and equipment. Individuals whose reactions are of the former type might be used for tasks emphasizing speed but not requiring great accuracy.

PB 18686. ODBERT, HENRY S., *et alii*. "Ability-to-take-it" tests: Examiner differences and validation. (CAA Division of Research Report 49.) October, 1945. 43 pp. Price: Microfilm, 50c.; Photostat, $3.00.

The present study, which was undertaken to validate two tests measuring resistance to pain and fatigue as predictors of success in flight training, revealed such large examiner differences that satisfactory validation was not possible. This report therefore places major emphasis on the analysis of differences in scores obtained by five examiners in administering two tests of resistance to fatigue and pain. The report concludes with validation data for the cases tested by two examiners. The general conclusion of the study was that "ability-to-take-it" tests could not predict the criteria employed in elimination from flight training. Instructions for administration of two tests are given in appendices—hand dynamometer test in Appendix A and constant stimulus shocker in Appendix B.

PB 15172. U.S. WAR DEPARTMENT. Reconditioning training programme for ASF convalescent hospitals, Z.I. June, 1945. (Army Service Forces Manual M7.) June, 1945. 90 pp. Price: Microfilm, $1.00; Photostat, $6.00.

The purpose of this programme is to serve as a guide for establishing appropriate courses consistent with the medical mission in convalescent hospitals, Z.I. Courses offer the opportunity to patients to participate in pretechnical and exploratory shop activities for avocational purposes, and to try out and develop skills that may serve as a basis for useful future assignments in the army or for future training in civilian pursuits. They also provide patients with occupational information and pre-vocational guidance. Scope of courses, text references, method of presentation and hours of instruction are tabulated. Courses covered include agriculture, automotives, business education, electricity and radio, graphic arts, metal working, woodworking and various miscellaneous occupations.

PB 20286. CLARK, R. E., *et alii*. The effects of sleep loss on performance of a complex task. (OSRD Rept. 3153; NDRC Applied Psychology Panel Rept. 67: Project SOS-6, Memo. 3.) September, 1943. 19 pp. Price: Microfilm, 50c.; Photostat, $2.00.

This project memorandum, prepared under NDRC contract of Tufts College covering research on fatigue in service jobs, presents the results of experiments in which subjects were required to go without sleep for fifty hours. Because only three subjects could be tested at a time, the experiment was repeated three times. The experiment is regarded as a preliminary test of the hypothesis that observers would show signs of fatigue (decrement in efficiency of performance) when periodically tested in the performance of a psychologically complex task during a period of sleep deprivation. Graphical representation of the performance of the nine observers tested indicates a decrement in efficiency. Efficiency in performance of complex psychological tasks suffered a significant decline during the course of fifty hours' wakefulness. Procedure and findings of tests are described. Schematic diagram of apparatus used and graphs of scores of performance are included.

PB 23318. THORNDIKE, ROBERT L., ED. Research problems and techniques (preliminary draft). (AAF Aviation Psychology Programme Research Report 3.) May, 1946. 169 pp. Price: Microfilm, $2.00; Photostat, $12.00.

This report undertakes to summarize the procedures which were developed and the problems which were encountered in the aviation psychology programme of the Army Air Forces, and more particularly in that portion of it which was concerned with the selection and classification of personnel for aircrew assignment. This report does not make a complete statement of statistical methodology. Reports 5, 6 (PB 18681, p. 1269) and 18 of this series give additional material on the methods used. This volume presents a general discussion of the research problems which were encountered. The sequence of chapters follows in a general way the sequence of operations in test development. These chapters follow the introduction: job analysis problems and procedures; the invention and refinement of aptitude test forms; problems in determining an adequate criterion; determining the validity of single tests; obtaining composite aptitude scores; problems associated with reliability and reliability determination; problems in correlational analysis; sources and control of error in test scores; and training experiments. The necessary graphs, charts, curves and tables to show test results are included in the report.

PB 19819. KELLEY, TRUMAN L. An activity-preference test for the classification of service personnel. Final report. (OSRD Rept. 4484; NDRC Applied Psychology Panel Rept. 407.) December, 1944. 168 pp. Price: Microfilm, $2.00; Photostat, $12.00.

This report shows the successive steps taken by Harvard University in devising and developing an activity-preference test which for each person tested furnishes a number of different scores corresponding to clusters of functionally related activities. Psychologists both in and out of the army collaborated in selecting and judging the importance of interest, attitude and preference dimensions in connexion with known facts about individual differences and about differences in need, especially military need. These dimensions were classified and combined and, after preliminary correlation and reliability study, were reduced to 34, which are designated rubrics. Some 2800 enlisted men in three army camps were tested, and those between the ages of 19 and 26 inclusive were scored on the 34 rubrics. The prospective fields of utility of the test are in connexion with the induction, classification and assignment of enlisted personnel, special service demands, the rehabilitation, training and placement of discharged military personnel, and non-military personnel whose activities have been disrupted through industrial retrenchment or reconversion. The following appendices are included in the report: A. Sources examined and utilized with reference to rubrics and items. B. Rubric definitions and weights. C. Directions for administering. D. Test booklets and answer booklet. E. Rubric scoring keys. F. Selected abstracts from monthly progress reports. G. Component scoring keys. Tables and charts of profiles are included.

PB 47056. BODENSTEIN, DIETRICH. Effect of nitrogen mustards on proliferating embryonic tissues. August, 1946. 1 p. Price: Microfilm, $1.00; Photostat, $1.00.

This is the summary of a lecture delivered before the A.A.A.S. Gibson Island Conference on Cancer. Embryos of *Triturus torosus* were exposed for 45 minutes to a 0·001% solution of methyl-bis (beta chloro ethyl) amine. The agent produces specific developmental inhibitions. Three reactions can clearly be distinguished: (i) resistance to exposure, (ii) a rather rapid breakdown of cells into chromatic fragments, and (iii) a striking enlargement of cells and nuclei later followed by a breakdown into nuclear fragments.

PB 47053. CHANUTIN, ALFRED, AND LUDEWIG, STEPHAN. Effects of protein and methionine on nitrogen balance of burned rats. No date. 11 pp. Price: Microfilm, $1.00; Photostat, $1.00.

This work was carried out in the biochemical laboratory, University of Virginia School of Medicine, under contract with the Medical Division, Chemical Warfare Service. The intake and excretion of nitrogen in white rats fed on a 20% casein basal diet, a basal diet supplemented with methionine, and a diet containing 40% casein were determined before and after burning with hot water. During the first few days after thermal injury, all animals were in negative nitrogen balance. Neither the addition of methionine nor increased protein ingestion affected the retention of nitrogen significantly. Reference is made to five literature sources.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held on April 9, 1947, at the Children's Hospital, Carlton, Melbourne, DR. JOHN B. COLQUHOUN, the President, in the chair.

Acute Agranulocytosis with Recovery.

DR. H. BOYD GRAHAM presented a female child, aged two years and five months, who was convalescent after treatment for acute agranulocytosis. The case history is reported separately (see page 649).

DR. REGINALD WEBSTER said that his knowledge of the patient was purely from the hæmatological angle. He agreed with the view that the condition was agranulocytosis or aplastic anæmia of obscure toxin origin. In spite of this, there were obscure nervous lesions. He felt confident that it was not a case of aleuchæmic leuchæmia.

DR. ROBERT SOUTHBY said that it was interesting to speculate on two points. The first was how long the leucocytes might be expected to survive after the child had been given a pint of her mother's blood. He also wondered if the development of abscesses might have accounted for the late increase in polymorphonuclear leucocytes.

DR. JOHN COLEBATCH thanked Dr. Graham for allowing him to help with the case. He said that he would not venture a diagnosis. The chief features were severe anæmia and severe granulocytopenia coming on without obvious cause and not affecting the platelets. Agranulocytosis was a syndrome produced by toxic agents affecting the granular series and not the red cells. If reduction in red cells was included under the heading of agranulocytosis, the position became confused, as this had been described as aplastic anæmia, though in this case there had been no thrombocytopenia. In aplastic anæmia, all those elements of the blood were not necessarily involved.

Dr. Colebatch went on to say that aplastic anæmia resulted from toxic agents and especially drugs containing the benzol ring, from infections and from X-ray exposure, and lastly there remained a so-called idiopathic group which was considered to be congenital. In the case under discussion the sulphadiazine administered was probably not significant as the child had pallor and other symptoms before its exhibition and the total amount given was very small, although it had to be remembered that cases had occurred after very small doses. He considered that it might help to try the therapeutic test later with a minute dose—perhaps half a tablet—and to observe the result. If no result was obtained, the condition would have to be regarded as idiopathic. Leuchæmia came into this group. Dr. Colebatch congratulated Dr. Graham and the resident medical officers on their successful treatment of the child. The granulocytosis obtained was probably attributable to penicillin and "Pentnucleotide", although the pneumonia might have stimulated leucocytosis. Dr. Colebatch said that he felt, however, that the child was far from cured and the condition might yet turn out to be a primary dyscrasia—leuchæmia or Hodgkin's disease or some other lesion. He recalled a similar case that he had met with in England. The child was kept alive by transfusions for several months. The third sternal puncture showed what appeared to be lymphatic leuchæmia, and it was not till a fourth sternal marrow examination was made very late in the illness that this diagnosis was clinched. Another patient whom Dr. Colebatch remembered was a child, aged fifteen months, with aplastic anæmia and a diffuse coccal purulent infection of the skin. The skin lesions were opened every second day. The picture of aplastic anæmia persisted for three months, and twelve months later was followed by complete recovery. Dr. Graham's patient would need to be kept under observation for months before the diagnosis could be fully established. Dr. Colebatch said that his own feeling was that there was something like leuchæmia at the back of the condition.

Congenital Heart Disease.

DR. A. P. DERHAM presented a male patient, aged two years and three months, who had been admitted to the Children's Hospital on February 25, 1947, suffering from an acute febrile illness which was diagnosed and treated as bronchopneumonia, associated with congenital heart defect. Dr. Derham said that the child presented some very unusual, and possibly unique, features. The mother was alive and well; the father was a returned soldier of the 1939-1945 war, had had five attacks of malaria, and had also suffered from ankylostomiasis. There was one younger brother, aged eight weeks, who was well. The parents stated that the patient had been well since birth, except for an attack of measles at the age of fourteen months, which was treated by a doctor. Nothing abnormal had been noticed about the baby, except that his parents volunteered the statement that he had seemed to breathe unusually rapidly since early infancy. He had been circumcised under general anæsthesia at the age of twenty months, but nothing abnormal had been noticed in his heart condition at that time.

Dr. Derham went on to say that the history of the patient's recent illness was that he had become irritable four days before admission, with anorexia and increased thirst. He developed a slight cough at night and his voice became "husky". Dr. A. L. J. Peters, of Gisborne, Victoria, was called in. Dr. Peters, in his letter, stated that the child's temperature at 1 p.m. on February 25 had been 102° F., his respiration rate was 160 per minute, and his pulse rate 76 beats per minute. There were signs of respiratory obstruction and of consolidation of the lung in the left subscapular area, and there were loud cardiac murmurs which Dr. Peters suspected might be due to a congenital cardiac lesion. He administered sulphamerazine. During the afternoon the temperature rose to 104·5° F. and the child was sent to the Children's Hospital, where he was admitted at 9 p.m. There had been no abnormal urinary symptoms, but the bowels had not been opened on the day of admission.

At the time of admission the parents stated that the child had been healthy since birth; they had never noticed any blueness of his lips or distress on exertion. Although he had had measles and had been circumcised, as far as they knew he had never been thoroughly examined by a doctor since he was born. The child was alert and flushed, but had no detectable cyanosis. The temperature was 102° F., and the pulse rate 78 per minute. The blood pressure was as follows: right arm, systolic 100 millimetres of mercury, diastolic, not recorded; left arm, systolic 120 millimetres and diastolic 50 millimetres of mercury. The blood hæmoglobin value was estimated as 120%. The pulse was regular and of good volume. The throat was somewhat reddened, but the tonsils were not enlarged; the tongue was clean. Examination of the ears and central nervous system revealed no abnormality and the urine was normal. Examination of the heart revealed the apex beat in the sixth left intercostal space, one inch outside the nipple line. On percussion there was found right cardiac dulness to the extent of between three and four fingers' breadth, and a diffuse systolic impulse was felt over the lower part of the precordium to both the left and right of the sternum. Inspection of the chest revealed a well developed forward deformity of the chest wall over the precordium which was so obvious that it was remarkable that it had not been noticed before. On auscultation there was heard a loud systolic bruit audible at all areas and audible also posteriorly near the lower angle of the left scapula. The pulse rate, both at the apex and at the wrist, was 78 beats per minute. The rhythm was regular. A third sound, late diastolic in time, and accompanied by a diastolic thrill, was audible at the apex beat; but it disappeared towards the base of the heart, and also disappeared when the heart rate was increased by exertion. Examination of the lungs revealed a percussion note resonant at all areas, except where obscured by increased cardiac dulness. Breath sounds were bronchovesicular and no adventitiæ were heard. The respiratory rate was identical with the pulse rate, and inspiration seemed to be synchronous with ventricular systole. This unusual synchronism continued unchanged during the child's stay in hospital, except occasionally when the child was distressed or when his attention was diverted; then he might take one or two extra breaths or miss one or two breaths, but he would immediately afterwards resume his regular breathing, synchronous with ventricular systole. Examination of the abdomen revealed no abnormality, except that the liver was palpable three fingers' breadth below the costal margin. Its lower margin was firm and smooth and it was not tender. The tuberculin patch test yielded a negative result.

A provisional diagnosis was made of pneumonia associated with congenital cardiac disease. The child was put in bed at rest in Fowler's position. Oxygen was administered by intranasal catheter, sedatives were given and penicillin (10,000 units every three hours) was injected intramuscularly. An X-ray photograph of the chest on February 26, 1947, was reported on by Dr. E. R. Crisp as follows: "Gross, almost spherical enlargement of the heart with marked pulmonary congestion, and possibly bronchopneumonic areas." After a second X-ray examination with a barium bolus on March 5, 1947, Dr. Freda Plarre reported

as follows: "There is little enlargement of the heart posteriorly, but chiefly anteriorly to both right and left, indicating right and left ventricular enlargement." An electrocardiogram (February 26, 1947) was reported on by Dr. H. L. Stokes as showing complete dissociation of auricular and ventricular beats. In addition there was "definite right axis deviation, indicating complete heart block". The ratio of the auricular rate to the ventricular rate as shown on the tracing was approximately 22:9. With penicillin therapy the temperature came down to 98° F. on the morning of the third day, but rose again to 101° F. that evening, when full doses of sulphamerazine were given and continued for one week. Penicillin was discontinued after ten days, but was resumed again on the twelfth day following a rise in temperature to 101·4° F., and was finally discontinued on the twenty-first day in hospital.

Dr. Derham remarked that the course and treatment of the pulmonary infection were relatively unimportant from the point of view of his presentation of the case, except as an index of how the patient with his serious cardiac defect reacted to such a medical crisis. The heart condition was the interesting and important problem for discussion, together with its unusual and possibly unique associated respiratory rhythm. Dr. Derham said that the cardiac signs and symptoms were consistent with an interventricular septal defect, commonly known as the *maladie de Roger*. The signs of complete heart block, indicated by clinical examination and the electrocardiogram, could be explained by a defect in or complete absence of the auriculo-ventricular conducting bundle. Beyond this it was difficult to identify the lesion or lesions, but in the absence of severe cyanosis, it was not necessary to postulate pulmonary stenosis. Dr. Derham said that Robert A. Lyon, writing in the Mitchell-Nelson "Text Book of Pediatrics", had stated: "This defect is one of the most common deformities of the heart. The opening is usually situated high in the septum just below the origin of the great vessels, and the amount of blood which passes from one side to the other depends on the size of the opening and the difference of pressure on the two sides of the heart. Usually the left ventricle is the stronger of the two and a small amount of oxygenated blood is forced back into the right ventricle for a second trip through the lungs. This causes little or no embarrassment of circulation. Symptoms are usually entirely absent and most patients are totally unaware that they have any cardiac abnormality. The lesion is usually detected on routine physical examination, although a few patients with large defects causing heart block may have noted the slow pulse rate and may have suffered attacks of syncope." After discussing diagnosis, Lyon went on to discuss prognosis as follows: "The prognosis is good for the small lesions unless infection develops at the site of the defect. . . . When there is a large opening in the septum with associated heart block the outlook is more serious." Concerning treatment, Lyon stated: "Treatment is limited to the repeated observation of the child with a view toward preventing infection and guiding his activity. Generally no restrictions of activity are necessary, provided the child's nutritional status is maintained at a high level, and growth and development proceed at normal rates. Participation in strenuous sports, such as racing, swimming and basket ball, should probably be forbidden." Dr. Derham went on to say that Maude E. Abbott in her "Atlas of Congenital Cardiac Disease" discussed this lesion in much the same terms as Lyon.

Concerning the synchronism between ventricular systole and inspiration, Dr. Derham said that he had observed this for considerable periods on several occasions. On each of these occasions both the pulse rate and respiration rate had been about 60 per minute, and on no occasion had he detected more than a momentary break in the synchronism, nor had the resident medical officer in charge of the case, Dr. Nancy McNeil, who had repeatedly observed the child over long periods.

Dr. Derham said that the case had aroused much interest, and several of his more erudite colleagues had advanced neurological explanations of the phenomenon. His own explanation, however, was that it was a biological adaptation to an abnormal situation—a very large heart in the small chest of an intelligent baby who had found he could breathe most comfortably in this way, and had formed a fixed habit of so doing. The patient was always calm and unperturbed and seemed to meet life, including the strange hospital surroundings, with a philosophy all might envy. When being given a poached egg for tea, he had remarked that it would have been better if there had been toast under it. Dr. Derham considered that the child deserved a better fate than life seemed to have allotted him.

DR. KATE CAMPBELL suggested that there might be some other associated lesion. The systolic bruit was best heard at the pulmonary area. This might indicate the presence of pulmonary stenosis and would help to explain the right axis deviation.

DR. KEITH HALLAM said that the presence of a double aorta might furnish an explanation of the difference in blood pressure findings in right and left arms.

DR. ROBERT SOUTHBY said that he also felt that the blood pressure readings suggested some associated anomaly in the aortic area.

DR. MEDWYN HUTSON asked whether observations had been made on the heart rate and respiration rate during sleep and after exercise.

Dr. Derham, in reply, said that it was quite possible that other lesions existed as had been suggested, and asked radiologists present whether it would be worth while taking further X-ray photographs to clarify the lesions. Dr. Derham delivered a message from Dr. Lawrence Stokes to the effect that Dr. Stokes agreed with the probable diagnosis of *maladie de Roger*, but thought that a second possibility was transposition of the great vessels at the base of the heart as described by Maude Abbott in her "Atlas of Congenital Cardiac Disease". This tended to cause a spherical enlargement of the heart, and might cause heart block.

(To be continued.)

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 218, of November 13, 1947.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

The following appointments have been terminated:

Acting Surgeon Lieutenant-Commander Douglas Lockhart Barnes Fearon, 30th July, 1947.

Surgeon Lieutenants John Russell, 17th May, 1944; William Francis Cooper, 1st February, 1946; Allen Wynn, 7th July, 1947; Lionel Robert Finlay-Jones, 29th July, 1947; Stephen Percy Baker, 15th August, 1947.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps.

WX10 Lieutenant-Colonel (Temporary Colonel) J. H. Stubbe, E.D., is removed from the Regimental Supernumerary List and is appointed Assistant Director of Medical Services, Headquarters, British Commonwealth Base, British Commonwealth Occupation Forces, 2nd June, 1947.

VX504168 Captain (Temporary Lieutenant-Colonel) P. G. Jones is removed from the Regimental Supernumerary List, 1st June, 1947.

NX200954 Captain (Temporary Major) K. Rubinstein is placed upon the Regimental Supernumerary List, 28th March, 1947.

VX503636 Captain (Temporary Lieutenant-Colonel) G. R. A. Syme relinquishes the rank of Temporary Lieutenant-Colonel and is transferred to the Reserve of Officers (Australian Army Medical Corps), 29th May, 1947.

Honorary Captain P. G. Jones is appointed from the Reserve of Officers (Australian Army Medical Corps) with the rank of Captain, is seconded for duty with the Australian Imperial Force and allotted army number VX504168, 21st April, 1947.

To be Temporary Lieutenant-Colonel, 21st April, 1947.—VX504168 Captain P. G. Jones and is placed upon the Regimental Supernumerary List. S41475 Lieutenant-Colonel H. W. Wunderly is transferred to the Reserve of Officers (Australian Army Medical Corps), 8th May, 1947.

To be Lieutenant-Colonel, 27th September, 1945.—S41475 Major (Temporary Lieutenant-Colonel) H. W. Wunderly.

To be Captains.—WX501273 Charles Geoffrey Batten, 2nd May, 1947, and NX506173 Murray Archibald Jackson, 15th April, 1947.

NX70456 Lieutenant-Colonel A. C. R. Sharp is transferred to the Reserve of Officers (Australian Army Medical Corps), 1st July, 1947.

To be Lieutenant-Colonel, 27th September, 1945.—NX70456 Major (Temporary Lieutenant-Colonel) A. C. R. Sharp.

Reserve of Officers.

The undermentioned officers are transferred to the Reserve of Officers on the dates indicated. Where applicable, they

cease to be seconded, and relinquish any temporary rank held with effect from the date of transfer to the Reserve of Officers:

No. 105 (*Adelaide*) *Military Hospital.*—SX34115 Captain I. G. Pavy, 25th June, 1947.

No. 110 (*Perth*) *Military Hospital.*—WX96334 Captain R. D. Watson, 21st June, 1947.

No. 112 (*Brisbane*) *Military Hospital.*—QX57650 Captain R. C. F. Cilento, 24th June, 1947.

No. 113 (*Concord*) *Military Hospital.*—Captains NX201183 L. I. H. Grant, 19th June, 1947, and NX200831 J. C. Kerridge, 28th June, 1947.

130*th Australian General Hospital.*—NX200954 Captain (Temporary Major) K. Rubinstein, 12th June, 1947, and NX206859 Captain R. D. Rothfield, 26th June, 1947.

70*th Australian Camp Hospital.*—NX207260 Captain J. F. M. Furber, 28th June, 1947.

77*th Australian Camp Hospital.*—QX57626 Captain V. B. Henry, 28th June, 1947.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The appointment of Temporary Squadron Leader (Acting Wing Commander) L. C. Rowan (253729) is terminated on demobilization, 6th September, 1947.

The appointment of Temporary Squadron Leader J. D. Maude (5281) (part time) is terminated on cessation of part-time duties, 31st August, 1947.

Temporary Squadron Leader N. M. Kater, M.C. (267549), is granted the acting rank of Wing Commander whilst occupying a Wing Commander post, 1st October, 1947.

Reserve: Medical Branch.

John Dudley Maude (5281) is appointed to a commission with the temporary rank of Squadron Leader, 1st September, 1947.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Seminar in Medical Statistics.

THE Post-Graduate Committee in the University of Sydney announces that Dr. H. O. Lancaster will conduct a seminar in medical statistics on Wednesday, December 10, 1947, at 5.45 p.m., at the School of Public Health and Tropical Medicine, University Grounds. The subject of the seminar will be "Medical Aspects of Life Tables", and any workers in medicine or related sciences are welcome to attend. These seminars are conducted on the second Wednesday of each month at 5.45 p.m.

Course in Advanced Medicine, 1948.

A course in advanced medicine suitable for candidates for the M.R.A.C.P. examination will be conducted for a period of twelve weeks from January 19 to April 9, 1948, the fee for which is £31 10s. The programme has been arranged to take place mainly in the afternoons, from approximately 2 p.m. to 5 p.m., on five to six days per week and will include the following:

1. Demonstrations in electrocardiography (normal cardiogram, coronary disease, the arrhythmias, deficiency diseases and infections).
2. Ward rounds at the principal metropolitan hospitals held approximately twice a week, including demonstrations of cardio-vascular, nervous and chest diseases *et cetera.*
3. Library seminars at which recent literature on set subjects will be discussed.
4. Set lectures on the more obscure medical, biochemical, physiological and pathological problems.
5. Demonstrations of the *fundus oculi.*
6. Demonstrations of pathology and hæmatology.
7. Demonstrations of the application of radiological methods of diagnosis to medical diseases.
8. Discussions on applied physiology.
9. Demonstrations of psychiatric cases.
10. Exhibition of selected medical films, lantern slides, strip films *et cetera.*

It is expected that students will devote the whole of their time to study, and for this reason the mornings may be set aside for reading. Opportunity should be taken to peruse all the recent medical literature, and students will be guided in their reading by the acting supervisor of the course, Dr. W. P. MacCallum, and later by the supervisor, Dr. Selwyn G. Nelson, on his return from abroad.

It is essential that candidates intending to enrol for this course should do so at the earliest date. Application should be made to the Course Secretary, the Post-Graduate Committee in Medicine, 131, Macquarie Street, Sydney. Telephones: BW 7483, B 4606.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

VISUAL AIDS IN INSTRUCTION.

THE Melbourne Permanent Post-Graduate Committee announces that a course of lectures and demonstrations in visual aids in instruction will be held at the Commerce Theatre at the University of Melbourne from December 1 to 12, 1947. The programme is as follows.

Lectures will be delivered from 9.45 a.m. to 11 a.m. Monday, December 1: "Investigations into the Effectiveness of Visual Aids", Mr. N. Rosenthal; Tuesday, December 2, and Wednesday, December 3: "Modern Developments in Education", Professor G. S. Browne; Thursday, December 4: "The Selection of Visual Material", Professor G. L. Wood; Friday, December 5: "Do's and Don'ts in Visual Instruction", Professor G. L. Wood; Monday, December 8: "Australian National Library and its Functions", Mr. J. O'Hara; Tuesday, December 9: "Problems of Production", Mr. N. Rosenthal; Wednesday, December 10: "Types of Visual Aid Equipment", Mr. N. Rosenthal; Thursday, December 11: "Psychological Factors in Teaching with Audio-Visual Aids", Professor Oeser.

Exhibitions and demonstrations will be given from Monday, December 1, to Thursday, December 11, inclusive, from 11 a.m. to 12 noon. On Friday, December 12, from 9.45 a.m. to 12 noon, there will be an exhibition of films produced by the Australian National Film Board.

Correspondence.

"FAILURE OF THE CLOTTING MECHANISM DURING ABNORMAL LABOUR."

SIR: The article entitled "Failure of the Clotting Mechanism during Abnormal Labour, with a Discussion of the Possible Causes" by B. J. Basil-Jones in THE MEDICAL JOURNAL OF AUSTRALIA, November 15, 1947, page 600, interested me, as on January 29, 1947, I was called to give a blood transfusion to a patient suffering from a similar condition in which laboratory tests indicated an absence of fibrinogen.

The patient, a woman, aged thirty-two years (*multipara*) suffered from a severe post-partum hæmorrhage due to retained placenta. It was estimated that she had lost about half of her total blood volume. When I saw her two and a quarter hours after the completion of the second stage of labour she was comatose and the heart sounds were inaudible; the respirations ceased just before a direct blood transfusion was commenced. She was given 720 cubic centimetres of blood in four minutes and the respirations recommenced and the pulse beat became palpable. However, she remained comatose, the corneal reflexes were absent, the pupils were dilated and she continued to lose blood. She was given three further direct transfusions (2000 cubic centimetres of blood) and a drip transfusion of citrated blood was then commenced, but there was no improvement—hæmorrhage continued and she died about five hours after I first saw her.

It was noticed that the blood lost *per vaginam* would not clot. Specimens of blood were obtained from the saphenous vein after the direct transfusions had been completed (about three hours before death) and were taken to the Baker Institute. The blood remained fluid indefinitely. Miss Nance found that the addition of human thrombin did not produce a clot, whilst normal controls gave a thrombin coagulation time of ten seconds. When the patient's plasma specimens were mixed with equal volumes of normal plasma estimations of prothrombin concentration gave values of 100%.

Dr. Fantl stated that from these results it was apparent that the hæmorrhagic condition was due to absence of fibrinogen. But since the patient received relatively large amounts of fibrinogen through donors' blood, it appeared

that there was a very potent fibrinogenolytic agent in the circulation.

To confirm these findings it is suggested that blood from similar cases be sent to Dr. Fantl for further investigation.

This patient was almost dead when the transfusion was commenced and it was thought that the failure of blood coagulation was associated with her moribund state; however, the case described by Dr. Basil-Jones indicates that the condition can occur in a less severe form from which recovery is possible.

Yours, etc.,

JOHN A. McLEAN.

417, St. Kilda Road,
Melbourne,
November 20, 1947.

ELECTROENCEPHALOGRAPHY.

SIR: I am interested in the subject of electroencephalography and, besides having worked in leading centres, have attended meetings of the E.E.G. Society of Great Britain.

Since electroencephalography will shortly become established in Australia, I consider it wise, at this juncture, to stress the importance of adhering to the standard laid down by the E.E.G. Society for the construction of electroencephalographic apparatus. Unless rigid scientific criteria are followed, results will not be standard and will not compare with that of other countries.

I would, therefore, make a plea that unless an electroencephalographic machine conforms to the pattern laid down,[1][2] it will lose in ultimate value. One should obtain: (*a*) A certificate of performance from a physicist or someone competent to report on the physical characteristics. (*b*) A set of records made in actual clinical tests. (*c*) A guarantee of maintenance.

I am writing this letter since this necessity has been constantly reiterated to me personally by leading authoritative British electroencephalographers.

Yours, etc.,

ALAN STOLLER,
Specialist in Medical Psychology,
Repatriation Headquarters.

Repatriation Commission,
Colonial Mutual Building,
314, Collins Street,
Melbourne.
November 19, 1947.

References.

[1] *Journal of Neurology, Neurosurgery and Psychiatry*, Volume VIII, 1945, page 61.
[2] *British Medical Journal*, July 25, 1946, page 126.

CLINICAL PHYSIOLOGY OF THE CEREBELLUM.

SIR: In the journal of November 1, 1947, Dr. B. D. Wyke seeks to demonstrate that the phylogenetic history of the cerebellum consists of three principal steps. The phylum is well defined. From the primitive cyclostome (*Petromyzon*—a lamprey) the ascent is traced through the Ichthyopsida, Amphibia, Reptilia, Aves and Mammalia to the Primates. At the top of the tree is *Homo sapiens*. Unfortunately, many will disagree with his picture of the vertebrate tree and will paint another. The main trunk is there, but the energy is not all concentrated in an effort to reach as high as possible. The branches are actively growing and differing in character the further out they project. It may be said that they are becoming more specialized. As a result of development in similar environments different species may present similarities of structure—a phenomenon referred to as convergence.

After the vertebrate emerges from the water there is a divergent growth in many directions. The reptiles and birds branch out in one direction and soon part company. Nevertheless, they retain so many similarities in structure that they are often grouped together as the "Sauropsida". The mammals bud out as three distinct branches, and it must be emphasized that there is no question of continuity from the monotreme to the marsupial, from the marsupial to the placental mammal.

Nowhere is this more clearly demonstrated than in the comparative anatomy of the eye. Here unfortunately even great anatomists have fallen into error and a fascinating theory has been built upon the alleged fovea of *Tarsius* and its effect on the neo-pallium.

If we accept this picture of the phylum, the theory of Dr. Wykes is undermined. Similar structures present in mammals and birds not to be found in amphibians must be attributed rather to convergence than to phylogenetic transmission.

At present we are not in possession of sufficient evidence to form any true picture of the vertebrate phylum. When the facts are so few it is rash to indulge in speculation. It would appear to be particularly unwise to base an anatomical classification on "phylogenetic history", a history as prone to prejudice and misstatement as the history of mankind.

Yours, etc.,

KEVIN O'DAY.

33, Collins Street,
Melbourne, C.1,
November 12, 1947.

The Royal Australasian College of Surgeons.

POST-GRADUATE COURSE IN SURGERY.

THE Royal Australasian College of Surgeons will conduct in Melbourne a post-graduate course in surgery. It will begin on March 1, 1948, and will cover a period of approximately thirteen weeks.

The course is suitable for all graduates who wish to undertake post-graduate study in surgery, and it is not designed solely for those desiring to present themselves for senior surgical qualifications. Lectures and lecture-demonstrations will be arranged in the surgical specialties. These will be announced in detail following the receipt of entries, which close on January 31, 1948. Lectures and lecture-demonstrations in pathology will also be arranged. A detailed syllabus will be available in due course.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1939, of New South Wales, as duly qualified medical practitioners:

Fowler, Mark, M.B., B.S., 1945 (Univ. Melbourne), 51, McDougall Street, Kirribilli.

Moore, Max Clifford, M.B., B.S., 1946 (Univ. Adelaide), 6, Chamberlain Street, Beverley Hills.

O'Flynn, Cornelius Patrick, M.B., B.Ch., 1934 (N.U. Ireland), c.o. the Bank of New South Wales, Sydney.

Woodhouse, Edward Blaumont, M.R.C.S. (England), L.R.C.P. (London), 1935, 580, Willoughby Street, North Sydney.

The following additional qualification has been registered:

Read, George, 87, Ocean Street, Woollahra (M.B., B.S., 1939, D.T.M., D.T.H., 1944, Univ. Sydney), M.R.C.P., 1947.

Public Health.

MASS SURVEYS FOR TUBERCULOSIS.

THE following statement is published at the request of the Director-General of Health, Commonwealth Department of Health.

The Tuberculosis Committee of the National Health and Medical Research Council submitted amongst others the following recommendations to the Council at its twenty-fourth session held in Sydney on November 12, 1947.

The first recommendation concerns the immediate action which should be taken when an abnormal shadow is detected in a miniature radiograph. The second deals with the reports which should be sent to the individual whose direct or full-size radiograph confirms the presence of this abnormal shadow advising him of the necessity for further investigation and informing his regular medical attendant of the character of the specialized investigations that are necessary.

1. The committee is of the opinion that the presence of an abnormal shadow in a miniature radiograph should not be considered diagnostic, but that in every such case a full-size radiograph should be taken.

2. The committee recommends that to the individual with an abnormal shadow in his full-size radiograph a printed letter be sent asking him to report to his usual medical attendant, or to a chest clinic, for further investigation. Also that a typed letter be sent to the medical attendant stating that his patient needs further specialized investigation such as a Mantoux skin test, and if this gives a positive result a full bacteriological investigation including a direct smear of sputum and/or culture of sputum or fasting gastric juice, and that sometimes guinea-pig inoculation will be necessary. In this letter it should also be stated that facilities for these investigations are available at the chest clinics.

Obituary.

JULIAN AUGUSTUS ROMAINE SMITH.

WE regret to announce the death of Dr. Julian Augustus Romaine Smith, which occurred on November 13, 1947, at Melbourne.

THOMAS WALTER LIPSCOMB.

WE regret to announce the death of Dr. Thomas Walter Lipscomb, which occurred in England on November 19, 1947.

Notice.

THE Resident Medical Officers' Society of the Alfred Hospital, Melbourne, will hold a clinical meeting on Wednesday, December 3, 1947, at 12.15 p.m.; the meeting will terminate at 1 p.m. and a buffet luncheon will be served in the resident medical officers' dining room. Dr. Ewen Downie will speak on the subject of zinc protamine insulin. Visitors will be welcomed.

MEMBERS are requested to consult the Medical Secretary of the Victorian Branch of the British Medical Association before making any application for appointments with the Yallourn Medical and Hospital Society.

Books Received.

"Modern Treatment Year Book, 1947: A Year Book of Diagnosis and Treatment for the General Practitioner", edited by Sir Cecil Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., F.R.S.E., F.A.C.S., F.R.A.C.S. (Hon.); 1947. London: The Medical Press. 8½" × 5½", pp. 398, with illustrations. Price: 15s.

"A Study of Individual Children's Diets", by E. M. Widdowson; 1947. Medical Research Council of the Privy Council, Special Report Series Number 257. London: His Majesty's Stationery Office. 9½" × 6", pp. 204. Price: 6s.

"Medicine, Psychiatry and their Borderland", by Alexander Frank, M.D.; 1947. London, Sydney and New York: Shakespeare Head Press Proprietary, Limited. 8½" × 5½", pp. 238. Price: 21s.

"Textbook of Histology for Medical Students", by Evelyn E. Hewer, D.Sc. (London); Fourth Edition; 1947. London: William Heinemann (Medical Books), Limited. 9½" × 6½", pp. 516, with many illustrations. Price: 21s.

"The 1947 Year Book of Radiology"; Diagnosis—edited by Charles A. Waters, M.D., associate editor, Whitmer B. Firor, M.D.; Therapeutics—edited by Ira I. Kaplan, M.D., F.A.C.R., associate editor, Sidney Rubenfeld, M.D.; 1947. Chicago: The Year Book Publishers, Incorporated. 9" × 6", pp. 416, with many illustrations. Price: $5.50.

"Manual of Physical Diagnosis: With Special Consideration of the Heart and Lungs", by Ellis B. Freilich, M.D., F.A.C.P., George C. Coe, M.D., revised in collaboration with Joseph K. Freilich, M.D.; Third Edition; 1947. Chicago: The Year Book Publishers, Incorporated. 8" × 5¼", pp. 352, with many illustrations. Price: $5.00.

"Physiology of Man in the Desert (Monographs in the Physiological Sciences)", by E. F. Adolph and Associates; 1947. New York: Interscience Publishers Incorporated. London: Interscience Publishers, Limited. 9" × 6", pp. 374, with many illustrations. Price: $6.50.

"Fundamentals of Immunology", by William C. Boyd, Ph.D.; Second Edition; 1947. New York: Interscience Publishers Incorporated. London: Interscience Publishers, Limited. 9" × 6", pp. 518, with illustrations. Price: $6.00.

"Training in Clinical Psychology"; Chairman, Dr. Lawrence S. Kubie; Editor, Dr. Molly R. Harrower; 1947. New York: Josiah Macy, Junior, Foundation. 9" × 6", pp. 88. Price: $1.50.

Diary for the Month.

DEC. 2.—New South Wales Branch, B.M.A.: Executive and Finance Committee. Organization and Science Committee.
DEC. 3.—Western Australian Branch, B.M.A.: Council Meeting.
DEC. 3.—Victorian Branch, B.M.A.: Branch Meeting.
DEC. 3.—Victorian Branch, B.M.A.: Council Meeting.
DEC. 4.—New South Wales Branch, B.M.A.: Special Groups Committee.
DEC. 4.—South Australian Branch, B.M.A.: Council Meeting.
DEC. 8.—Victorian Branch, B.M.A.: Executive Meeting.
DEC. 9.—Tasmanian Branch, B.M.A.: Ordinary Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.